



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

HD

4404

OFFICE OF THE COMMISSIONER

JUN 1 1909

N 5

1505

COLLECTING WATER REVENUES

B 457485

STORAGE

L 115

METHODS

of the

BUREAU OF WATER REGISTER, MANHATTAN

with

SUGGESTIONS FOR REORGANIZATION

Submitted in November, 1908

to the

Commissioner of Water Supply, Gas and Electricity

BUREAU OF MUNICIPAL RESEARCH

261 BROADWAY, NEW YORK

MAY, 1909

PRICE, 50 CENTS

CONTENTS.

	Page
Foreword	3
Letter of transmittal embodying summary of conditions as found, and conclusions	5
Introduction	10
Part I Present* organization for central direction and control, and proposed reorganization for central direction and control	12
Part II Establishing charges and keeping accounts with consumers	24
Part III Present* organization and methods of procedure followed in establishing charges and keeping accounts with consumers	29
Part IV Administrative results of defective methods found by inspection and examination of records	
Section 1 Frontage rate branch	41
Section 2 Meter rate branch	44
Section 3 Building purposes and taps branch	54
Part V The organization and methods proposed for meeting the conditions necessary to establish accurately water charges	75
Part VI The collection of charges receivable and making return of receipts	80
Exhibit A—Powers and duties of personnel of the present* organization	84
Exhibit B—Description of the present* records and procedure	
Part I In the office of Water Register	86
Part II In the office of chief clerk	89
Part III In the building purposes and taps branch	92
Part IV In the frontage rate branch	100
Part V In the meter rate branch	108
Part VI In the shipping branch	116
Part VII In the meter setting branch	123
Part VIII In the office of general inspector	138
Part IX In the office of cashier	139
Exhibit C	
Part I List of suggested records and forms for use in the several bureaus and divisions of the Bureau of Water Register	142
Part II Description of suggested records and forms, together with the procedure relating to their use	149
Part III Draft of suggested plan for the rearrangement of floor space and for office equipment suited to the proposed administrative records and procedure	
Chart I Present* organization	
Chart II Suggested reorganization	
Index	

* The word "present" as applied to organization and methods, and the present tense as used in descriptions of conditions and procedure have reference, unless otherwise specified, to the period prior to Jan. 1, 1908

HD
4464
.N5
B95

COLLECTING WATER REVENUES

METHODS
of the
BUREAU OF WATER REGISTER, MANHATTAN
with
SUGGESTIONS FOR REORGANIZATION

Submitted in November, 1908
to the
Commissioner of Water Supply, Gas and Electricity

BUREAU OF MUNICIPAL RESEARCH, N.Y.
261 BROADWAY, NEW YORK
MAY, 1909

25 May 10 E.S.

FOREWORD.

The purpose of this report is fourfold:

1. To describe conditions existing in the Water Register's Bureau, Borough of Manhattan, at the time of the examination by the Bureau of Municipal Research in 1907.
2. To set forth the suggestions made to remedy defects found.
3. To show the steps taken by responsible officials to improve defective methods and procedure.
4. To emphasize the necessity for a vigorous administration of the new methods adopted to make them effective.

Notwithstanding the fact that the constructive suggestions submitted by the Bureau of Municipal Research were formulated after months of careful study of the administrative problems of the Register's Bureau by highly qualified experts, they were submitted to the department and to the Comptroller not as final conclusions, but as a basis for discussion. Both the section of the report that deals with existing conditions and that which deals with suggestions for improvement were offered in a spirit of co-operation. As an earnest of the constructive purpose of the inquiry, suggestions for new methods were submitted several months in advance of the critical sections of the report.

Although in each constructive suggestion proposed, the aim is to locate responsibility for future failure to safeguard the interests of the city, in describing conditions existing at the time of the inquiry, emphasis is placed on defects of methods, without attempt to attribute non-feasance or inefficiency to personal neglect.

Inasmuch as the conditions found in the Bureau of Water Register had doubtless existed for years, it was assumed that the constructive purpose of the inquiry, namely, to secure the most efficient administration possible of one of the largest municipal industries in the world, could best be served if administrative methods and results were accurately described and attention was focused on new methods to be adopted, rather than on past derelictions.

The changes in procedure which have been formally adopted by action of the Commissioner of Water Supply, Gas and Electricity, with the approval of the Comptroller, are shown in the appended statement. The actual work of installing new processes and records is now in progress under the supervision of the Comptroller. The methods now being installed were finally formulated after careful consideration of the suggestions of the Bureau of Municipal Research by a committee consisting of representatives of the Departments of Water Supply, Gas and Electricity and Finance, the Commissioner of Accounts and the Bureau of Municipal Research, formed by the Water Commissioner at the suggestion of the Bureau.

In the list of forms submitted as a basis for discussion (Exhibit C, I), those marked A were adopted by the Commissioner as a result of discussion with representatives of the Bureau; those marked A R were adopted after reference and conference with the committee above mentioned; those marked O were referred to the committee, but by mutual agreement were omitted from discussion, owing to lack of physical equipment; those marked N A are forms suggested by the Bureau which were not referred and have not been adopted by the Commissioner for installation.

The accounting forms adopted, if properly administered, will enable those in positions of official responsibility to exercise control over the accuracy of the accounts, as well as to obtain prompt and accurate information concerning water charges established and collections made. The forms which have not been adopted have reference primarily to the administration of inspections and to the location of responsibility for economy and efficiency in the prosecution of the bureau's work. In other words, the system which is now in process of being installed relates itself primarily to accounting control, while the procedure which looks toward administrative control over the organization of the bureau has not as yet received the same favorable consideration.

In adopting the new plan of accounting reorganization, the Commissioner has assumed responsibility for its execution. By failure to adopt some method whereby the Water Register may exercise intelligent direction over the personnel, he has assumed responsibility for conditions present which demand his serious attention.

BUREAU OF MUNICIPAL RESEARCH.

LETTER OF TRANSMITTAL.

Bureau of Municipal Research,
261 Broadway,
New York, November 9, 1908.

Hon. John H. O'Brien, Commissioner,
Department of Water Supply, Gas and Electricity,
New York City.

Dear Sir:

In April, 1907, in accordance with your offer of co-operation, the Bureau of Municipal Research undertook a study of the activities of the Department of Water Supply, Gas and Electricity. The report herewith submitted, together with the related exhibits, as follows: Exhibit A, Exhibit B, Parts I-IX.; Exhibit C, Parts I-III.—deals only with the Bureau of Water Register of Manhattan. During the course of the investigation on which this report is based, we have been continuously in touch with the Water Register, and from time to time have conferred with other heads of bureaus and branches, as well as with your honor and your deputies. On May 28th, 1908, we rendered to you an interim report containing our constructive suggestions without comment. Since that time the part which dealt with the building purposes and taps branch has been adopted by you. We now formally submit as a matter of record our final Report on the Organization and Administrative Methods of the Bureau of Water Register of Manhattan, containing our findings of fact and our reasons for suggesting a complete reorganization of that branch of the service, the principal features of which have been from time to time informally discussed with you.

In presenting this report we beg to bring to your attention in summary form the conditions as found and the conclusions reached:

1. The administrative problems of the Bureau of Water Register are:
 - a. To determine accurately the amount of charges to be made against persons or property using city water.

- b. To protect the rights of the city by making an accurate record of these charges in the form of accounts against the persons and liens against the properties benefited.
 - c. To collect all such charges during the period prescribed by ordinance.
 - d. To make return of all collections to the City Chamberlain and of all charges in arrears to the Receiver of Taxes.
 - e. To report to the Comptroller the amounts collected in order that the Comptroller and the Commissioners of Accounts may audit the receipts of the city from this source.
2. The methods employed in the bureau were found to be such that none of these purposes might be effectively carried out. Defects as to methods revealed by the investigation may be summarized as follows:
- a. With respect to charges made for water used the methods employed were not well designed or administered:
 - 1) To determine the accuracy of
 - a) *Frontage rate charges.*
 - b) *Meter rate charges.*
 - c) *Charges for water used for building purposes.*
 - d) *Charges for water used by the shipping in New York harbor.*
 - 2) To determine the *charges for material and labor, for meters set and repaired.*
 - b. With respect to the records of account for water charges there was no adequate method employed for determining or controlling:
 - 1) *The accuracy of water charges recorded.*
 - 2) *The accuracy of bills rendered for water charges.*
 - 3) *The accuracy of records of collections.*
 - 4) *The accuracy of the list of accounts returned to the Receiver of Taxes as in arrears.*
 - c. As to collections made by the Bureau of Water Register:
 - 1) There was no adequate method of determining whether the amount actually collected was deposited with the Chamberlain.

- 2) There was no adequate method of determining whether the amount reported as having been collected and returned to the Chamberlain was the amount which should have been collected.
- d. As to the report to the Comptroller:
- 1) There was no basis for audit of the accuracy of the receipt vouchers as returned to the Chamberlain and received by the Comptroller from him.
 - 2) There was no adequate basis for the audit of receipts by the Commissioners of Accounts as required by law.
3. Ascertained facts on which these conclusions as to administrative method are based are:
- a. That frontage rates were in many instances erroneously charged, for the reason:
- 1) That property charged on the frontage rate basis had been falsely reported as to frontage.
 - 2) That property on the frontage rate basis had been falsely reported as to the character of use.
 - 3) That property on the frontage rate basis had been falsely reported as to the character of fixtures and appliances.
- b. That meter rate charges were in many instances erroneous for the reason:
- 1) That meters did not accurately measure the water used:
 - a) The character of meter being such as to be easily impaired and tampered with.
 - b) Many of the meters having been permitted to remain in a condition of neglect for long periods of time.
 - 2) That charges against the property of persons having meters which were out of repair were averaged, and that averaged charges were compromised in settlement.

- 3) That much water was used which did not pass through the meters:
 - a) Inadequate protection having been provided against by-passes.
 - b) Meters removed for purposes of repair not having been promptly replaced.
 - c) Inadequate provision having been made to prevent metered property or apparatus from obtaining water from properties or persons paying for water on a frontage rate or term rate basis.
- c. That charges for water used for building purposes were erroneous for the reason:
 - 1) That no provision was made for obtaining estimates from architects at the time application was made for a permit.
 - 2) That the clerical labor necessary to the accurate determination of the charge was not performed.
 - 3) That the procedure adopted by the building purposes and taps branch for determining charges did not assume or require accuracy.
 - 4) That new constructions, alterations and demolitions were not adequately inspected.
 - 5) That adequate administrative supervision and control were not exercised over the building purposes and taps branch.
- d. That the charges for water used by the shipping in New York harbor were in many instances erroneous for the reason:
 - 1) That the Bureau of Water Register was inadequately informed as to the vessels and apparatus which might use water.
 - 2) That inadequate provision had been made for determining what vessels and apparatus within the harbor were using city water.

- 3) That inadequate provision had been made for preventing vessels and apparatus taking water from properties or persons who were paying for water on a frontage or annual rate basis.
- e. That the city was not adequately protected against delays in payment of charges for labor and material and meters set and repaired, nor were the persons against whom such charges were made protected against unjust charges by plumbers.
4. The financial result of defects in organization and administrative methods is a very great loss to the City of New York in revenue, as well as an inordinate cost to the city for work actually performed.

The purpose of this report, in so far as description and criticism of methods and the result of administration are concerned, is to lay the foundation for consideration and intelligent discussion of the problem and to emphasize the need for change. Drafts of forms of the suggested records are at present in course of preparation in the Water Register's Bureau for installation.

Respectfully submitted,

BUREAU OF MUNICIPAL RESEARCH.

Per

HENRY BRUÈRE,
Director.

F. A. CLEVELAND,
Technical Director.

INTRODUCTION.

The Corporation of the City of New York, as the proprietor of water works, discharges two distinct classes of business functions:

1. It acts as a construction company, having direction over new constructions and extensions.
2. It maintains and operates five great water supplying systems called, respectively, the Croton water system, the Bronx River water system, the Queens water system, the Brooklyn water system and the Richmond water system.

The work of
the Bureau
of Water Reg-
ister.

Administratively, the first of these two functions (construction) presents, primarily, an engineering problem. The second function above described requires administrative attention to be given (a) to the maintenance and operation of physical properties, (b) to the revenue aspects of the enterprise. That is to say, the Department of Water Supply, Gas and Electricity must care for its water sheds; it must maintain its reservoirs, its aqueducts, its mains, and it must operate and maintain its pumping stations. These are the physical and mechanical aspects of operation and maintenance. It must also determine the amount of the charge to be made against each water user; it must record the charges so determined, and, under the charter, it must currently collect water rates and accounts receivable, making return therefor to the City Chamberlain, reporting all arrears to the Receiver of Taxes—such return and report being subject to the audit and accounting control of the Comptroller. These are the revenue problems to be administered within the department. Corresponding roughly to the functional activities described, and not including funding provisions, the records and accounts have been divided into:

1. Construction records and accounts.
2. Expense records and accounts.
3. Revenue records and accounts.

The construction and expense records and accounts are under the general supervision of the auditor. The revenue records and

accounts are under the direction of the Water Register. It is to administer revenue responsibilities, establish revenue charges, keep revenue accounts, and make revenue collections and returns that the several bureaus of the office of Water Register have been organized.

The present organization of the Bureau of Water Register, Manhattan, is shown in outline on Chart I. The personnel and duties are described in detail in Exhibit A. The present methods and procedure are fully set forth in Exhibit B, Parts I to IX, inclusive. The suggested reorganization is shown in outline on Chart II. The proposed records, forms and procedure suggested for their use are described in detail in Exhibit C, Parts I to III, inclusive.

The organization of the Bureau of Water Register.

The revenue branch of administration, the Water Register's office, may be considered with reference to three classes of functions:

1. Those of central direction and control.
2. Those which have to do with the establishment of charges receivable and the keeping of accounts with water consumers.
3. Those which have to do with collecting charges receivable and making returns therefor.

It is in relation to these three classes of functions that description, criticism and constructive suggestion for reorganization will be discussed.

PART I.

CENTRAL DIRECTION AND CONTROL.

The problem of central control is one of keeping informed as to the current work and operative results of the several branches of the Bureau of Water Register, and of exercising intelligent official discretion in the determination of such questions as may not be delegated to the several branch heads.

The present organization for central control.

The present organization for purposes of central direction and control over the Bureau of Water Register is as follows:

1. <i>Office of Water Register</i>	2
Register	1
Secretary	1
2. <i>Office of Chief Clerk</i>	9
Chief clerk.....	1
Complaint clerk.....	1
Mail clerks.....	2
Messenger	1
Stenographers	4
3. <i>Inspection Branch</i>	4
Chief inspector.....	1
Acting general inspector....	1
Assistant general inspector..	1
Clerk	1
<i>Total</i>	15

Information at present reported.

Information from the branch heads comes currently to the Water Register from:

1. Daily reports of collections by the cashier and by the financial clerk assigned to the building purposes and taps branch.
2. Weekly reports of the chief inspector, showing the assignments, duties, etc., of each member of the staff.

The inadequacy of this information is at once apparent:

Inadequacy
of reports
and records.

1. *No time records are kept.* In lieu thereof daily memoranda and personal statements as to delinquents are supposed to be made by the chief of each of the several branches direct to the Register. If, however, for some reason this information is not given, the delinquency is lost sight of.
2. A considerable portion of the time of the Register is taken up with hearings on various classes of complaints. Although this is a very important part of the work of administration, and is the means whereby the Register is able to keep in direct touch with the water user who is a complainant, and with persons employed by the consumer or by the bureau in setting meters, *no minutes are kept of such hearings and no formal record thereof is preserved in the department.*
3. Neither the office of Register nor any other division of the bureau keeps a file for the current collection of information necessary to the making of the stated reports required to be made to the Commissioner, consequently these reports are often delayed while information is sought that should have been currently assembled.

For purposes of central direction and control, both the organization and the procedure by which information is recorded and reported are defective. As a matter of organization there is not a proper co-ordination of responsibility. In the office of Register the secretary acts in the capacity of office secretary, having little or no supervision over the details of the business of the bureau; the chief clerk, although held responsible for general supervision over the several branches of work, does not occupy the position of assistant register or direct representative of the official head; he cannot enforce his orders, as few powers are delegated to him. As a result, the Water Register may be said to have no direct representative; he himself deals personally with every clerk in charge, as well as with the public. Persons calling are free to go direct to him without inquiry being interposed as to the nature or importance of their business. Upon data obtained through personal contact, it is the practice of the present Water Register to go directly to the subject in hand in his own way, without regard for or reference to the chief clerk or to the clerks in charge of branches.

Defects in
organization
and procedure.

Such a practice is a common result of method and procedure which give to each branch head or chief of a division of work in an office or department, a monopoly over information concerning the current details of business. Without a general bookkeeper and without the means of exercising central accounting control, without daily, weekly and monthly reports which will regularly bring before the Water Register the facts necessary to intelligent guidance of the work of the bureau, the most effective method which he can employ is that of a master detective. To serve efficiently in the capacity of detective, it is *necessary* for him to *go under*, instead of *through*, his chief clerk and his branch heads. On the other hand, an organization which would bring to the Water Register currently the information required to make him an efficient chief administrator, would necessitate that he work through his chief clerk and branch heads. Under the present regime, when the Water Register is in his office he is beset with inquiries and complaints. When he is absent, the business of the bureau is run by a group of independent and co-equal units, the affairs of each going on without a strong central co-ordinating administrative head; at such times the only administrative control over details is found in the personal contact which is gained by the chief clerk.

The defects of the organization of the Water Register's Bureau as a whole may be thus summarized:

1. There is no provision made in the organization for the co-ordination of responsibility.
2. The Water Register is inadequately provided with the means of regularly obtaining information that would enable him to exercise administrative control over employees and hold them responsible.
3. The means of gaining personal contact, which he has been required to adopt, encumbers him and his time with many matters of unimportant personal inquiry, leaving little opportunity for the consideration of the larger aspects of business, and for the determination of questions requiring the exercise of official discretion.

Effort of the
Water Register
to correct
defects.

Realizing the weakness of the present organization and methods during the period which has come under our observation, the Water Register has sought to modify the procedure so as to make his office more effective. As an example of his efforts to this end is cited the

recent change made in the method of reading meters. Beginning with February 26, 1908, the field books which previously had been placed in the hands of inspectors and which contained the history of meter readings for several years, were abandoned. The meters are now required to be reported on separate slips. Under the instructions of the Water Register, these slips are to be mailed at the end of each day from the place of last reading, thus avoiding many of the opportunities for collusion which had previously existed. These instructions have not been strictly followed, but a better basis exists for administrative control over inspections, if utilized. In cases of suspected illegal use of water the present Water Register has been particularly active, having assigned to this work a confidential inspector, besides giving to the subject much of his own time. Another object of special inquiry by the present Water Register has been the inspection of the water front through the water patrol boat and the corps of special inspectors.

The organization proposed for central direction and control over the various branches of the Bureau of Water Register would comprise:

1. <i>Office of Water Register</i>	2
Water Register.....	1
Secretary	1
2. <i>Office of assistant water register and chief clerk</i>	11
Assistant register and chief clerk	1
Complaint clerks.....	2
Mail clerks.....	2
Time and payroll clerk....	1
Messenger	1
Stenographers and listing clerks	4
3. <i>Division of accounting control</i>	15
General bookkeeper.....	1
General ledger clerk.....	1
Billing clerks.....	6
Bill filing and bill listing clerks	4
Card record clerks.....	2
General file clerk.....	1

4. <i>Division of inspection control</i>	2
Chief inspector.....	1
Clerk	1
<i>Total</i>	30

Plan of
reorganiza-
tion proposed
for
central
control.

To make effective the central direction and control of the Bureau of Water Register, a net increase of fifteen clerks is suggested, two of whom would be assigned to the office of assistant register and chief clerk, and fifteen to the division of accounting control, a branch of the service which does not at present exist. A reduction of two is suggested in the office organization of the division of inspections, leaving the net increase of fifteen. The increases suggested are not only necessary in order to overcome the present defects in organization, but under the plan proposed marked reduction in the net cost of service will be effected by reducing the number of clerks in the consumers' ledgers branch.

Office of the Water Register.

In order that the Water Register may be kept thoroughly in touch with every division and branch of service, it is suggested that the following reports be required:

- a. Daily report by the time and payroll clerk in the office of assistant register and chief clerk, showing over and lost time.
- b. Comparative monthly reports by the payroll clerk showing over and lost time.
- c. Monthly reports by the complaint clerk in the office of the assistant register and chief clerk showing by classes the number of complaints received, the number of complaints acted on, the balance not acted upon, etc.
- d. Daily report by the cashier showing collections made, by classes of revenue accounts receivable.
- e. Comparative monthly report by the cashier showing collections by classes.
- f. Comparative monthly balance sheet, general ledger account current and revenue account.

- g. Comparative monthly report from the building purposes and taps branch.
- h. Comparative monthly report from the shipping branch.
- i. Comparative monthly report from the meter setting branch.
- j. Daily report of the division of inspections showing the number and classes of inspections made by each inspector.
- k. Comparative monthly report by the division of inspections.
- l. Report on special assignments.

Besides the reports above referred to, it is contemplated that the Water Register have in his office records of the various classes of actions taken by him as follows:

- a. Record of actions taken on reports showing the use of unmetered water for purposes that should be metered.
- b. Record of actions taken on reports of illegal use of water.
- c. Record of actions taken on complaints for excessive charges by city plumbers.
- d. Record of actions taken on complaints against licensed plumbers.

In order that the Water Register may have control over such documents as may be considered of a privileged character, it is suggested that there be kept in his office under the jurisdiction of his secretary:

- a. A file of applications to the Commissioner for appointments and removals.
- b. A file of special assignments for inspections, examinations, etc.
- c. A file for the current collection of such data by the secretary as may be necessary for the prompt preparation of the quarterly and annual reports of the Water Register to the Commissioner.

The administrative advantages of the above-described reports, records and files are obvious. Their value, however, depends largely on the promptness with which they are delivered and the accuracy of the information they contain. These two ends have been definitely provided for, as will be shown in the description of work in the several divisions, offices and branches that follows. It is

contemplated that under the central control of the general book-keeper the books will be closed promptly and their accuracy ensured.

Office of Assistant Register and Chief Clerk.

Suggestion
for reorgan-
ization.

To relieve the Water Register from the details of business, except in such cases as may seem important, and to leave him free to give his attention to the current reports of work done and to the larger and discretionary aspects of administration, it is suggested that the office of *assistant register and chief clerk* be created. The vicarious relation of the assistant register and chief clerk is shown on Chart II. His duties would be to represent the Register in his absence, as to both responsibility and authority, to have immediate charge of the details of central administration and to perform such duties of a general nature as might be assigned to him by the Register.

Co-ordinat-
ing and
directing
head.

Through the office of the assistant register and chief clerk would pass all of the regular reports from the other divisions and branches of the service to the Water Register. Subject to the direction of the Water Register, the assistant register and chief clerk would act as a general co-ordinating and directing head over the central accounting branch, inspection branch, the consumers' ledgers branch, the shipping branch, the building purposes and taps branch, the meter setting and repairs branch, and the collection branch. To his office would come all mail for dating and distribution by the mail clerk. All complaints and advices of violations and omissions would come to the complaint clerk in his office. Under his direction would also be the payroll and time clerk, and the general stenographic and messenger service. To the chief clerk would be assigned such inspectors as, in the opinion of the Water Register, might be necessary to give proper attention to complaints and violations.

Administra-
tion of
complaints.

The position of *complaint clerk* is not important at the present time. Under the plan proposed, the complaint clerk would be one of the most important factors in the bureau. To be efficient, it would be necessary that he be acquainted with details of business in every division, office and branch to which complaints are referred. He would be responsible for central administrative control over the correction of matters complained of. All complaints would be referred to divisions or branch heads only after determination on the

part of the complaint clerk, (1) whether a complaint was well founded, and (2) whether the complaint might be disposed of upon the information obtainable by him without reference. For example, if a complaint were made asking that a meter be removed, it would be for the complaint clerk first to determine whether a meter is located on the property of the complainant. After this is determined, the complaint would be referred to an inspector assigned to the office of chief clerk. Upon the report of the inspector it would be referred by the complaint clerk to the Water Register, who would decide whether the meter should be removed. If the decision of the Water Register were in the affirmative, this decision attached to the complaint would be the authority for an order to the chief of the meter setting and repairs branch for removal, notice also being sent to the owner informing him of the determination in the case.

The *mail clerk* would be held responsible: (1) for opening, dating and properly assorting all mail received; (2) for proper distribution of all complaints to the complaint clerk; (3) for knowledge as to whether attention has been given to mail; (4) for listing all checks received for the payment of water revenue accounts receivable, and (5) for listing all checks returned, as is fully described in Exhibit C, under title of the work of the cashier's office.

Handling
of mail.

The *time and payroll clerk* would be responsible: (1) for keeping the time and payroll register; (2) for knowing that all payrolls were supported by properly certified time sheets or time cards, and (3) for making report to the Register of over and lost time, whether excused or unexcused.

Time and
payroll
records.

The Central Accounting Branch Proposed.

As above stated, *there is at present no effective method of control either over the accuracy of the accounts or over the integrity of those dealing with the income of the city from water rates and permits.* The division of accounting control suggested is designed to accomplish both ends. No added expense would be imposed on the bureau by the method of central control proposed; on the contrary, an actual economy would result.

Present lack
of accounting
control.

In the division of accounting control would be kept the central and controlling records of the bureau, the work being conducted in five divisions, namely, general bookkeeping branch, billing branch, bill filing branch, card record branch, the general files branch.

In the *general bookkeeping branch* would be:

- a. A general ledger of controlling accounts and a general journal through which entries would be posted to the general ledger and frontage rate revenue journal for purposes of checking up in detail the frontage rate revenue supporting the general ledger frontage rate revenue account.
- b. The meter rate and miscellaneous revenue journal for checking up in detail meter and miscellaneous revenues supporting similar revenue accounts in the general ledger.
- c. A consumers' ledger journal for purposes of exercising accounting control over each frontage rate and meter ledger kept in consumers' ledgers accounts branch.

Through these several forms of record, independent control would be established both over the accuracy of revenue accruing and over the promptness with which reports would be made and advices exchanged.

The controlling accounts to be kept in the *general ledger* would be as follows:

1. *Asset accounts:*

Frontage rates receivable.
Meter rates receivable.
Metered shipping rates receivable.
Building purposes rates receivable (supplementary).
Miscellaneous revenues receivable.
Chamberlain.
Petty cash.

2. *Liability accounts:*

Over and double payments—frontage rates.
Over and double payments—meter rates.

3. *Revenue accounts:*

Revenue—frontage rates regular.
Revenue—frontage rate extras.
Revenue—frontage rates—penalties.
Revenue—meter rates regular.
Revenue—meter rates—penalties.
Revenue—shipping permits regular.
Revenue—shipping permits extras.
Revenue—metered shipping rates.

Revenue—building purposes permits—demolitions.
 Revenue—building purposes permits—alterations.
 Revenue—building purposes permits—new construction.
 Revenue—building purposes permits—extras.
 Revenue—taps permits.
 Revenue—miscellaneous.

4. *Clearing account*—Department of Finance.

It is from these accounts that the comparative trial balance, account current and revenue accounts would be taken off at the end of each month as a report to the Water Register. Revenue Journals.

In the *frontage rate revenue journal* would be carried all of the different classes of frontage-rates-regular, frontage-rates-extras and frontage-rates-penalties. In the *meter rate and miscellaneous revenue journals* would be carried the revenue accruing from meter-rates-regular, meter-rates-penalties, meter-rates-shiping, and the several classes of shipping permits, building purposes and taps permits, and miscellaneous revenue. From these two journals would be made a report to the Water Register of classified revenue in detail.

The *consumers' ledgers journal* would carry by columnar arrangement an account with each ledger, through which would be passed all charges and all credits by ledger totals, thus enabling the general bookkeeper to obtain control over the accuracy of each subsidiary ledger as proved by the trial balance, and permitting the subsidiary ledger bookkeepers to take off a trial balance at any time for purposes of such proof. Method of exercising control over consumers' ledgers.

At the present time frontage rates bills are made up as called for and meter rate bills are made twice a year and sent to the consumer. The bills are hand written in single copy with a stub attached. Not only is a large amount of time lost by this process, but in the frontage rate and meter rate branches the equivalent in time of twenty-four clerks is used for rewriting records and billing; but practically no means of accounting control is established. Frontage rates are established each year by having the frontage rates ledgers rewritten; when a frontage rate bill is desired, it is necessary for the clerk to go to the ledger in which the account is kept, find the proper account, then by independent process write both the bill and the stub, which, when written, are handed to the person making the request, without any record of the bill being made in the bureau.

The proposed
card record
branch.

In order that the cost and delay of rewriting the frontage rate ledger each year may be avoided, while providing at the same time for all of the historical and descriptive information necessary to give a complete record of each property and the data necessary to establish the frontage rate charge, a *card record* is recommended (Exhibit C, Parts I and II). This card record would contain a separate card for each water-using property, with description of fixtures, special uses, changes and other data necessary to establishing the charge at the billing period, and would be kept by card index clerks under the control of the general bookkeeper. From it all frontage bills would be written, the amount of charges being posted to the frontage rate ledger. The card would also serve as an index to the subsidiary or consumers' ledgers, being filed by section, block and lot number.

To the end that the present cost and delay in *billing* may be largely reduced, it is suggested :

1. That all frontage rate bills be written prior to May 1st of each year.
2. That they be written by billing clerks in the billing branch, under the direction of the general bookkeeper.
3. That they be written in quadruplicate on billing machines with adding attachments, schedules of the bills in duplicate being also made at the same writing.
4. That after being checked and approved to the card index record, one copy of the schedules of bills written be sent to the Comptroller as an audit sheet for the use of the auditor of receipts in proving the correctness of the daily collections as returned by the cashier.
5. That the meter bills be written semi-annually from the meter ledgers.
6. That the bills be in quadruplicate, with schedules in duplicate, and in much the same form as frontage rate bills.
7. That the metered shipping bills be treated in the same manner as the regular meter bills.

The method of writing and procedure are shown in detail in Exhibit C, Parts II and III hereto attached.

By the billing process proposed, not only would there be a net saving in time and expense, but delay would be avoided in making payments, and the bill might be used as an effective means of exercising accounting control both over the cashier and over the accuracy of consumers' accounts as kept by the consumers' ledgers clerks. After the bills had been written and checked to the schedules as before described, one schedule having been delivered to the Comptroller for an audit sheet, the other schedule would go to the general bookkeeper. The bills themselves would be delivered to bill filing clerks in the *bill filing branch*, under the direction of the general bookkeeper, where they would be filed in cabinets by section, block and lot number, the bill filing clerk also having a cross index by property description. Consumers desiring to pay bills would not, as at present, apply to ledger clerks to have the bills written before presenting them to the cashier, but would apply to the bill filing clerk, who would turn to the cabinet containing the section and block, withdraw the bill corresponding with the description, detach the quadruplicate or memorandum bill and hand it to the consumer. After payment of a bill, the bill filing clerk would detach the original and duplicate and pass them to the cashier, retaining the triplicate copy for his files of bills paid. At the end of the day the triplicate copies of bills sent to the cashier for payment would be assorted by the listing clerks in the bill filing branch. After being assorted, they would be listed on schedules in sequence of book and folio numbers. These lists would be made on listing and adding machines, a footing being shown for the amounts to be posted to each ledger book. These schedules would be sent to the general ledger and journal clerk, who would check the total amount of the schedules to the daily report of the cashier. These schedules would be journalized in the consumers' ledger journal in the office of the general bookkeeper and sent to the consumers' ledger clerks for posting, thus establishing a control over credits to each ledger.

The use of bills for purposes of accounting control.

Files of all papers and documents supporting the general journal entries and books of accounting control, as well as other documents and authorities having an accounting or reporting significance would be kept under the general bookkeeper. The files would be classified by subject and by section, block and lot reference. By the centralization of the files under a clerk specially charged with their keeping, the Register and the heads of the divisions and branches of the bureau would at all times be able quickly to obtain documents and papers desired.

PART II.

ESTABLISHING CHARGES AND KEEPING ACCOUNTS WITH CONSUMERS.

The administrative problem.

Administratively, the establishing and recording of each class of water charges presents the following general problems:

1. While rates as fixed by ordinance are uniform for all persons, the amounts of individual charges to water consumers and properties depend upon conditions, and these conditions must be determined by administrative processes.
2. The aggregate of revenue charges accruing to the city for water used depends on the promptness, completeness and correctness of reports made by the employees of the Bureau of Water Register with respect to conditions present at each property to be charged.
3. Each employee to whom the administration must look for promptness, completeness and correctness of information is constantly confronted by inducements to make false returns and false records and to neglect his duty.

In these circumstances those in official position not only owe it to the city, but to themselves and to the civil service, so to organize and to adopt such methods and procedure as will insure accuracy of returns and relieve employees from the temptation to accept inducements to betray their trust or neglect their duties.

Frontage Rate and Meter Rate Charges and Accounts.

Conditions determining frontage rate charges.

The administrative problem may best be understood when considered with relation to each class of charges to be determined. For frontage rates the Board of Aldermen has established a minimum, application of which must depend on the conditions reported for the following variants:

1. Number of front feet:
 - a. Front building.
 - b. Rear building.
2. Number of stories:
 - a. Front building.
 - b. Rear building.

3. Classes of use:

- a. Extra families.
- b. Bars.
- c. Liquor and lager beer saloons.
- d. Dining saloons.
- e. Laundries.
- f. Barber shops.
- g. Bakeries.
- h. Soda, mineral water and root beer fountains.
- i. Fish stands.
- j. Florists.
- k. Photograph galleries.
- l. Bottling establishments.
- m. Hotels and boarding houses.
- n. Milk depots.

4. Classes of fixture:

- a. Water closets and urinals.
- b. Baths and bathing tubs, private houses.
- c. Baths and bathing tubs, public houses, boarding houses and bathing establishments.
- d. Wash boxes.
- e. Stalls.
- f. Steam engines.
- g. Baptistries.
- h. Horse troughs.

There may be as many variants of the first general class (number of front feet) as are established by measurement; each of the last general class (character of fixture) again may be multiplied by the number of fixtures of each class used. From this statement it will appear:

- 1. That the number of varying conditions that determine the application to a particular property of the frontage rates established by ordinance is so great, that it is possible to have a different amount for each property in the city which is on a frontage rate basis.
- 2. That the accuracy of each charge made and recorded depends:

Conditions
determining
meter rate
charges.

- a. On the accuracy and completeness of information obtained from the field as to the conditions present with each water-using property, and
- b. On the fidelity with which conditions are recorded, and charges are computed and stated in the accounts.

The difficulty of determining property conditions, the uncertainty as to the amount of water which may be used under any ordinance or departmental rule fixing frontage rates, and the uncontrolled waste of water which is incident to such an unmeasured use, have suggested that the entire water service of the city be placed on a metered basis. A metered service, however, is not without serious administrative difficulty. While there is only one rate established in the city per cubic foot of water used, charges against metered property must depend upon:

1. The adoption of a mechanical device:
 - a. Adapted to determining accurately the number of cubic feet consumed.
 - b. Which may not be impaired without prompt discovery.
2. The proper setting of such a meter or mechanical device.
3. Correct information as to the part of the property which has been metered, when both metered and unmetered use of water is permitted.
4. Ascertaining whether by-passes have been made or other means provided for obtaining water which is not measured or charged for.
5. Determining whether the meter is at all times in condition of repair and continues to measure accurately the water which passes through it.
6. Prompt report as to when the meter gets out of repair or when it has been tampered with, and whether the meter has been promptly repaired and reset.
7. Prompt registration of the fact as to when the meter has been permanently removed and the property is again to be charged on the frontage rate basis.
8. Accurate readings of the meter index.
9. Correctly reporting such readings.
10. Correctly recording such readings in accounts against the property or person to be charged.

Each of the conditions above described presents its own administrative difficulties, in overcoming which the department must, of necessity, rely on employees entrusted with the mechanical work and with obtaining, reporting and recording the information.

Charges for Shipping.

Vessels and shipping apparatus on the water front which use city water present another class of administrative problem in establishing and recording charges. Many of the largest users are required to take water from metered hydrants, in which case not only is the meter problem present, but also the problem of correctly ascertaining whether vessels recorded as taking water at metered hydrants may not take water from fire hydrants and unmetered property, or from vessels which have permits to use unmetered water, thus depriving the city of a part of its revenue. Provision is made for the use of unmetered water by permits. These permits are rated by ordinance according to the classes of vessel and apparatus for which application is made, about eighteen different classes being established. The amount and correctness of charges for permits depend, therefore, upon:

Conditions
determining
shipping
charges.

1. Information with respect to vessels taking water, and
2. The correctness of information as to the class of vessel or apparatus to which a permit is issued.

Since these permits are issued for definite periods, it is also important to know that no time elapses between the date of the expiration of the permit to take water, and the beginning date of the period of the next permit charge. The roving character of water craft, the proximity of the city to other municipalities and private docks having convenient water supplies, the use of condensing apparatus for the conversion of salt water into fresh water for the boilers—all of these conditions make difficult the problem of detecting the illicit taking of water.

Charges for Building Purposes.

Much water is used throughout the city by private individuals for building purposes; demolitions must be wet down to prevent dust; alterations and new constructions require water for mortar and cleaning, as well as for steam and hydraulic apparatus employed in

Conditions
determining
building
purposes
charges.

building operations. What are known as regular rates for building purposes are fixed by ordinance, but again their application depends on such varying conditions as the number of bricks, the square yards of mortar, the cubic yards of stonework, etc. Approximately correct information as to these conditions may be obtained in advance from applications made from the plans submitted, or by inspection after operations have begun. In any event, although the established rates are uniform, charges are different for every demolition, alteration or new construction. Besides the regular building charges, other rates have been fixed for what are known as extras, or for water used by apparatus employed in building operations. The accurate determination of each class of rates thus presents a difficult administrative problem.

PART III.

THE PRESENT ORGANIZATION AND THE METHODS AND PROCEDURE FOLLOWED IN ESTABLISHING CHARGES AND KEEPING CONSUMERS' ACCOUNTS.

The present organization for establishing charges and keeping consumers' accounts is as follows:

<i>Frontage rate branch</i>	19
Clerk in charge.....	1
Clerks keeping records and billing.....	8
Posting and billing clerks.....	2
Clerk checking coupons against cash post- ings	1
Measurers and laborers.....	6
Special work.....	1
<i>Meter rate branch</i>	24
Clerk in charge.....	1
Clerks posting meter readings.....	3
Billing clerks.....	16
Cash posting clerks.....	2
Clerk checking coupons against cash post- ings	1
Complaint clerk.....	1
<i>Meter setting and repairs branch</i>	19
Clerk in charge.....	1
Permit, notice, violation and record clerks.	9
Inspectors:	
Pipe yard.....	1
Engineering	1
Meters and plumbing.....	4
Skilled laborers.....	3
<i>Shipping branch</i>	4
Clerk in charge.....	1
Water boat crew.....	3
<i>Building purposes and taps branch</i>	2
Clerk in charge.....	1
Permit clerk.....	1

<i>Inspection branch</i>	61
Chief inspector.....	1
Clerk	1
Acting general inspector.....	1
Assistant general inspector.....	1
Inspectors	57
<i>Total</i>	129

The present methods and procedure employed in each of the branches having to do with establishing charges and keeping consumers' accounts are described in Exhibit B. They will be considered here seriatim.

Defects in
organization
of accounting
branches.

The *frontage rate accounts* and *meter rate accounts* are at present kept in separate branches. As a matter of organization, this would seem to be a mistake for the reasons: (1) That the character of the work is similar and (2) that the clerical service in the two branches is such that a large part of the work in each branch falls within two or three months of the calendar year. The heavy work in the frontage rate branch comes about the first of May, the first of August and the first of November. Between these periods a considerable portion of the time of the clerks is spent in idleness. It is a usual experience between these "rush" periods to find a large part of the clerks doing little or nothing. The same is true of the meter-rate branch. Periods of increased and decreased activity make it uneconomical to manage these branches as at present organized. Further than this, under the present organization the billing and the accounting are done by the same person, and the water consumers deal directly with the clerks in charge of the consumers' ledgers. This is wrong in principle for two reasons: (1) It seriously interferes with the clerical work of the accounting branches; (2) it constantly brings before those who are responsible for protecting the city a temptation to collusion with the purchasers of city water. Such organization as is at present maintained does not readily lend itself to the location of responsibility either for accuracy of workmanship or for industry and economy of time. The present organization does, however, lend itself to favoritism as between employees, and thus tends toward disorganization and lack of discipline, in that one or more employees may be almost entirely relieved from duty, while others may be overcharged with

work without this fact coming to the attention of the head of the bureau. In case it comes to his attention, under the present procedure of the head of the bureau may be unable to prove that such conditions exist.

Frontage Rate Charges.

For the purpose of obtaining initial entries in opening new building accounts and for purposes of inquiry or making changes the frontage rate branch depends on a real estate publication known as the *Record and Guide*, instead of relying on official information. From this unofficial publication, data is entered in the field books of measurers who are required to make examination prior to the completion of improvements and to report to the clerk in charge of the frontage rate branch the character and class of the building. The measurer reports the frontage measurement, the height of building, the number of stories, the number of apartments, the storerooms, fixtures, etc., from which the original charge may be entered on a frontage rate basis. Adequate steps are not taken to supplement this original inquiry after the building has been occupied.

Frontage
rate accounts
established
on unofficial
information.

For keeping in touch with changes in occupancy, means are also wanting. It is possible, therefore, for the measurer, in the interest of the owner, to report a condition which will cause the city for a long period of time to be deprived of revenue due. Working from a published description of plans without the proper means of obtaining knowledge of changes in those plans, and without making reinspections, the department is holding out a constant inducement for both neglect of duty and collusion. Without detection, the measurer's report as to the date the charge shall accrue may also be delayed; the city may be furnishing water to a large building for a considerable period without charge. Or, in business districts, the charge on new buildings may be on a frontage rate basis for a long period of time, after occupancy, when it should have been metered. Instead of waiting for the report of a measurer for information as to date of completion of a new structure or alteration before entering charges against the property, periodical reports should be required from the building purposes and taps branch as to the progress of building operations and the probable dates of completion. In other words, information should be at hand from which the work of the measurers

Opportunities
for collusion
and loss of
revenue.

may be directed, instead of leaving the frontage rate branch dependent on the initiative and voluntary action of the measurer. The present practice holds out a continuing inducement to measurers to make terms with water users, the effect of which would be to deprive the city of revenue.

Consumers' ledgers annually rewritten.

In establishing the annual charge on a frontage rate basis, the present method is to rewrite annually all the ledgers (35) of this branch. This requires a great deal of time and labor which is unnecessary, in that it seems comparatively easy to design a record which would carry the information necessary to start the account and also one which would for a term of years carry the charges and credits for water used on the frontage rate basis.

Elements of danger in billing.

It is absolutely wrong in principle to permit the bills to be written by the clerks on application of consumers, because no protection is given to the city against the arbitrary reduction of the bill presented by the consumer to the cashier for payment and a subsequent entry crediting the consumer with the full amount of the account against him. Moreover, the present billing process is cumbersome and expensive. The bills and the coupons are separately written by hand, and this process is repeated as often as bills or copies of bills are requested. When a bill is called for, it is necessary each time for the clerk first to ascertain the description of the account, then locate the account in a ledger containing this description, after which the bill is written. Under the present practice, much more time is required to locate the account to be billed than to write the bill; and after the bill is written there is no information or memorandum of bills issued by means of which control may be exercised either over the cashier or over the accuracy of consumers' accounts.

Inability to prove accuracy of credit postings.

The present method of determining the accuracy of credit postings to consumers' accounts is one of detailed check by a clerk charged with this duty. The practice is to have the credit entry made by one clerk, while the checking is done by another clerk from the coupons or stubs of bills received from the cashier. This method is of little value, since the proof of checking consists of a pencil or ink check. The credit entries are made by two men working together, one calling from the cash book and the other making the entry into the ledger. Illustrating the possibilities of error inherent in such a method, instances have been discovered of amounts credited in the ledgers of the bureau that differ from the amounts shown to have been collected by the cash book. The clerk making the entries admits that

he made them, but claims that he must have made the entry called to him by the clerk who read from the cash book. But as a considerable time has elapsed since the entry was made, he has no recollection of who the calling clerk was. Even if the calling clerk was known, this would not locate responsibility, as it could not be said whose error it was, nor would there be evidence of collusion. Again, wrong entries have been checked, but there is no evidence that it was the coupon clerk, charged with checking, who placed the checks upon the book, the checks being of a character which anyone might have made. But even the initial of a checking clerk is little protection, since this may be forged with such appearance of resemblance as to escape other than expert detection. In fact, any method of detailed check is ineffective for ordinary purposes of accounting control. The only method of insuring the accuracy of accounts would be to bring the ledger accounts under accounting control, which at the present time is not attempted.

To the present treatment of accounts in arrears particular attention is called. Under the present practice, it frequently happens that after return has been made to the Bureau of Taxes, it is found that accounts have not been included which should have been returned, and under the law the city is thereby deprived of its lien upon the property. In such cases the only protection the city has is to rely upon a legal action against the owner or to let the account stand as a cloud on the title until a subsequent purchaser may insist on its removal before transfer. In this connection it is also to be noted that the Bureau of Taxes and the Bureau of Assessments and Arrears do not report to the Water Department collections made on accounts in arrears, and from an administrative point of view the department has no knowledge of its relations with water consumers except those currently shown on the books. Under the present regime, it is the common practice for many owners of buildings to allow their accounts to go in arrears, expecting thereby to obtain more favorable settlements.

Defects in present system of arrears.

Meter Rate Charges.

An ordinance adopted May 15th, 1900, provides that, at the discretion of the Commissioner of Water Supply, water meters shall be placed in all stores, workshops, hotels, manufactories, office buildings and public offices, and on all wharves, piers and places where water is furnished for business consumption. Dwelling houses

Wide range of discretion as to properties to be metered.

are excepted. This places a wide range of discretion in the Commissioner, both with respect to businesses to be metered and with respect to what may be considered dwelling houses. During the last two years a large number of meters have been installed, the total number to the time of our examination being about six thousand. The principal records of the meter branch consist of meter ledgers on which are carried accounts of users of metered water, including steamboats, wharves and piers. The amounts of the charges to these accounts are determined from returns in the form of meter readings.

No method
of proving
accuracy of
meter
accounts.

As a means of knowing that all property to which water has been furnished has been included either in the frontage rate or meter rate ledgers, a description of all properties, whether metered or unmetered, is shown upon the ledgers in the frontage rate branch. There is, however, no method of proving the correctness of the metered property records, in that inspectors in the field are not instructed, except in special cases, to make an examination of frontage rate properties. In many instances property which is partly metered may be carried as a metered property and the frontage rate may be missed. Again, since the record on which the department depends for such control as it exercises over the completeness of meter accounts is the frontage rate ledger, which is rewritten every year, properties may be left out of the frontage rate ledgers either by mistake or collusion, and the omission not discovered for a considerable period of time.

The old
method of
reporting
readings.

As stated above, the meter branch depends entirely upon reports of inspectors for charges for water consumed. Until the latter part of February, 1908, several months after our examination of this branch of the service, these reports were made on books which carried the history of meter conditions for a long period of time, about 40% of the meters being continuously read by the same inspector. The result of such practice has been fully shown. The present method of returning meter readings on independent slips has in it the possibility of vast improvement over that previously employed, but is still crude, is laxly administered and lacks a number of the essential elements of control; inspectors are not carefully supervised; the readings are taken too infrequently and are haphazard. As a result the city may lose a large amount of revenue, not only on account of the long period of lapse prior to billing, but especially by reason of the failure of the city promptly to know the condition of meters, the best index to which is found in returns by meter readers. Even at the present rate of meter

New method
of reading
not well
administered.

reading, it would require only between fifty and sixty meter readers constantly assigned to this work to read every meter in the city once each month. If meters were under proper administrative supervision and control, and if attention were given to their location, the efficiency of the staff might be largely increased, so that for some time to come a force of fifty or sixty readers would be able to read the increased number of meters in use. To read the meters now in use once each month, and at the present rate, an added operating expense of \$25,000 a year might be required, but the increase in revenue would probably amount to many times the added expense. Besides, the greater frequency of meter reading and meter inspection by readers would largely reduce the number of special investigations now made necessary as a means of keeping in touch with meter consumption.

Meter bills are at present rendered twice each year, about May 1st and November 1st, respectively. These bills are based on the amount of water consumed, as shown by the index of previous bills and the index of the last reading. In other words, charges are not extended for intermediate readings. In many cases the last reading available for purposes of establishing a charge on a bill is more than six months previous to the billing date. As a result, favoritism is possible, and even when unintentional, inequality of treatment is the necessary attendant of such a practice. There is no reason why bills should not continue to be rendered semi-annually as at present. In case meters are read monthly or bi-monthly, the charges should be extended on the book as a basis for making up the bill. Moreover, there is no reason why the work of the meter ledgers might not be equalized by having certain sections billed each month, thus enabling all of the accounts to be stated twice each year without having periods of overwork and periods of idle time. In case a reading does not appear upon the books within thirty days prior to the billing period, a special investigation should be made.

Possibility of
favoritism
in billing.

As in the case of frontage rates, neither the Bureau of Taxes nor the Bureau of Assessments and Arrears of the Department of Finance makes any report on collections returned on meter bills in arrears. As in the frontage rate branch also, there is an absolute lack of control over the accuracy of accounts, both as to charges and as to credits. The only way that a proof of charges may be had is by checking in detail all of the meter readings to the ledger and proving extensions and footings. The only way that the payments may be proved is by checking in detail the entries from the cash book

Difficulty of
proving
accuracy of
record of
payments.

to the ledgers and then taking off a list of the unpaid items and checking this to the books of the Receiver of Taxes and the books of the Collector of Assessments and Arrears of the Department of Finance, where again the entries of collected and uncollected items would have to be checked in detail and proved to the cash returned to the Chamberlain. To facilitate the work of posting the meter ledgers, a transcript is made of all meter payments from the department cash book, thus causing a duplication of cash records for the purpose of posting. This is a waste of time, and does not assist materially in establishing control. The making of copies of records does not establish accuracy, as the errors of the one are copied to the other; it only multiplies the chances of error. The checking of postings from the coupons obtained from the cashier has the same faults and limitations as described in discussion of the frontage rate division.

**Neglect of
meters out
of repair.**

Another administrative defect to be noted is found in the failure to make a report to the meter setting branch on the meters out of repair and the violations returned by meter readers. This may be said to be largely due to the fact that there is no co-ordination between the condition reported by meter readers and the work of meter setting and repair. For example, the inspector records a violation in the field book, or, as at present, on a separate meter reading slip, which is turned over to the meter rate branch. This may or may not be promptly reported to the meter setting and repair branch. Under the present organization and practice, in case it is reported, the meter setting branch will make another inspection to determine whether or not, in the judgment of the clerk in charge, the violation should be removed or the defect corrected. The result may be a loss in time which entails a corresponding loss in revenue.

Meter Setting Charges.

**Duplication
of work and
lack of
control.**

The meter setting branch issues permits for setting, repairing, removing, disconnecting, locating and testing meters. It also directs and issues permits for the removal of violations of the meter setting and repair branch. As a matter of administration, the organization is defective, in that the meter setting branch is allowed to exercise discretion as to what meters shall be set, repaired or removed. As has been shown, this not only causes duplication and delay in inspection work, but it does not lend itself to central control, a fact which may account for the condition in which the city's meters were found

on inspection by the Bureau of Municipal Research. Not only is there little central direction over the meter setting branch, but there is no method of current reporting by means of which the Water Register may obtain information necessary to give direction and exercise control. No attempt is made to co-ordinate the reports made from the pipe yard and by the meter companies with the records of the meter setting branch. No inventory is kept of meters set and meters in use or in the possession of the city.

The meter setting bills are not properly audited, in many cases the bills of city plumbers showing on their faces what seem to be disproportionate charges for labor, without any question being raised by the department. Collections on meter setting bills are not made by the cashier, but by a financial clerk in the office of the building purposes and taps branch. Until recently no vigorous effort seems to have been made to reimburse the city for amounts paid to the city plumber or to collect promptly from private parties for material and labor of the city used for their benefit. In many instances bills paid by the city have been allowed to go for years uncollected, the city having an unnecessarily large amount of money invested in this manner. When efforts have been made to obtain payments, the charges have been in many instances contested as being unjust and the amounts reduced, causing a loss to the city of the amount of the reduction.

Meter setting bills unaudited and uncollected.

In the meter setting branch there is also a duplication of forms and records that both leads to confusion and adds to the detail of work necessary to administer. Here also laxness in administration permits violations to go on for a long period without being removed. The plumber is not held to strict account. Therefore, the city loses revenue both through waste of water and through the inaccurate registration or measuring of water used.

Violations not promptly removed.

For want of proper records, the branch cannot determine the efficiency or inefficiency of the staff or locate waste and loss of time.

Inability to locate responsibility.

Shipping Branch Charges.

The shipping branch of the Bureau of Water Register was established for the purpose of determining the amount of charges for water used by water craft of all kinds, except charges for water supplied to shipping which is metered. For its supervision over the unmetered water supply, this branch is provided with a water patrol boat, which usually carries, besides its crew, two inspectors.

No register of shipping.

For information, the shipping branch depends upon reports of inspectors and upon statements of owners making application for permits to use unmetered water. To assist the bureau's administration of this branch of the business, however, no attempt has been made to obtain a complete register of water craft plying in New York harbor, although such information is readily accessible at the Bureau of Navigation of the United States Government.

Difficulties in
administering
the rates.

Low pressure permits are issued to tugboats and steam lighters, for which the charge is one-half the amount required for high pressure. Many of these boats are equipped with valves, by means of which the engines may be run either at low pressure or high pressure. The use of this valve might deprive the city of a considerable revenue, if an owner or master of a vessel, having declared a boat equipped with it to be low pressure, should obtain a low pressure permit. To prevent such loss of revenue, a recent order requires that all boats having such equipment be charged at the high pressure rate.

Expiration of
permits not
properly
guarded.

To the different classes of boat and water front apparatus, fourteen or fifteen different classes of permit are issued. Each of these charges is for a definite period. Notwithstanding this fact, no tickler is maintained by the bureau, by means of which the expiration dates would be brought systematically to the attention of the head of the branch or administrative head of the bureau, so that notices might be sent out promptly for the renewal of permits, or that inspection of the water front craft might be systematically directed. Present inspection is by means of a roving commission given to two inspectors who patrol the water front. The difficulty of such a patrol and the possibility of loss on the part of the city will be appreciated when it is noted that not only are there forty odd piers, docks and quays on the water front at which unmetered water may be taken, but water boats are licensed to supply shipping in the harbor. Water may be taken by boats not having permits from those which have permits. The difficulties of administration and the cost of maintaining this branch of the service might be largely avoided if all of the water front were metered and the duty of determining the amount to be charged to each craft were placed upon the Dock Department, the total amount of water so used being charged to the shipping branch.

Building Purposes and Taps Charges.

The building purposes and taps branch was organized for the purpose of establishing the amount of charges for unmetered water used in building purposes and for making taps on water mains.

As in the case of frontage rate charges, the practice has been to depend on the real estate publication, *Record and Guide*, for information on which original entries are based, instead of obtaining this information officially from the Bureau of Buildings. It is also the practice to allow the clerk issuing the permits to exercise discretion as to whether any charge whatever shall be made; thus placing an inducement constantly before the clerical staff to decide in favor of the water user instead of protecting the revenue of the city.

Uncontrolled discretion in establishing charges.

Another administrative practice that needs correction is that of permitting the clerk in charge of the building purposes and taps branch to determine the amount of the charge without any check or control being exercised over his determination. It is the custom to roughly figure the plans or roughly estimate the amount of mortar, brick and masonry which will require water in construction, and from this to establish what is known as the regular rate. This being done, what are known as charges for extras are left to the department to discover by inspection or otherwise. All along the line the present method is one of continuing inducement to collusion and to falsification of returns.

Plans roughly estimated.

Collections for tapping permits are made by a financial clerk representing the cashier, making return only once each week. Not only are the collections made by the financial clerk for tapping permits, but also for meter setting bills and other miscellaneous receipts of the department. In organization and administration this is wrong. All cash collections should be made by the cashier and returned daily. Making returns once each week tends to encourage the clerks to borrow from these collections.

Cash collections not centralized.

On the record side there is a multiplicity of forms which are unnecessary. There seems no reason, for example, why there should be three registers or indexes in this branch, as one would suffice. But even could it be shown that there is necessity for three registers, there is no reason why they should not be uniform, since the classes of permit registered therein are similar.

Lack of uniformity of records.

The fact that the city has no lien on the property for water furnished for building purposes gives added reason why there

No lien for charges.

should be promptness in discovering the amount of the charge and why the charges should be made and collected in advance of the actual beginning of the work or before it has progressed materially, instead of being left uncollected, as frequently happens, until after the building is almost or completely finished.

PART IV.

ADMINISTRATIVE RESULTS OF DEFECTIVE METHODS FOUND BY INSPECTION AND EXAMINATION OF METHODS.

That these administrative defects are real, and not imaginary, will appear from the conditions found to exist at the time of the examination by the Bureau of Municipal Research. Two representatives of the Bureau were in the field as inspectors for four weeks during the months of August and September, 1907, besides time employed in the analysis of accounts and inspection records in the Bureau of Water Register.

SECTION I.—FRONTAGE RATE BRANCH.

For the purpose of determining whether regular frontage rate charges agreed with the facts, the frontage rate ledgers carrying accounts with certain properties were compared with the tax records. The differences in measurements discovered were of small moment. For the purpose of determining whether properties had been correctly reported as to classes of business affecting the charge, 871 business addresses, scattered widely throughout the Borough of Manhattan, were taken from the classified business directory. All were found to be listed upon the Water Department's books. Of these 871 addresses, 202 were visited. Of the 202 visited, 31 were found not to be using water in the business named in the directory; of the remaining 171 properties, 15, or 9%, were found to be erroneously charged as to class of use.

Errors in Records as to Business Use.

Among the errors in business classification determined by field inspection were the following:

1. Property located at 48 Delancey Street; frontage rate charge, \$12; water closet, \$2; total, \$14; paid July 19th, 1907. Although this property was on a frontage rate basis, it was found that in the basement were twelve stalls, all in use. The first floor was used for the storage of wagons and the second and third floors were used as a synagogue.

2. Property located at 321 East 63rd Street; frontage rate charge, \$6; paid July 26th, 1907. Although charged as a dwelling, the building was found to contain eighteen stalls, fifteen of which were in use.
3. Property located at 516 West 28th Street; frontage rate charge, \$15; water closets, \$24; baths, \$30; total, \$69; not paid. All four floors of this property were kept as a laundry. This property being occupied by a charitable society, it is possible that no charge whatever should have been made. At any rate, both the facts presented and the charge were in error.
4. Property located at 2388-2390 Broadway; frontage rate, \$15; water closet, \$6; baths, \$3; extra family, \$1; total, \$25; paid July 23rd, 1907. The basement of No. 2390 contains two gas engines and three large washing machines; the first floor contained a laundry office; the second floor drying and ironing rooms. The first and second floors of the premises at No. 2388 contained a picture store. Both premises have been occupied by the tenants three years.
5. Premises located at 613 West 49th Street; frontage rate charge, \$9; stalls, \$28; total, \$37; paid July 31st, 1907. While this property was recorded as a stable, it was found to contain four stalls, instead of twenty-eight, and a scouring and dyeing business, for the use of which there were ten tubs, with water running in a large stream through a gutter in the center of the room.
6. Premises at 327½ East 122nd Street; frontage rate charge, \$6; paid July 31st. Although this property was recorded as a residence, ten stalls were found in the basement, eight of which were in use. On the first and second floors was a bottling business, which had been there for three years.
7. Premises at 232-234 West 18th Street. "Rear and store" were recorded as being metered. The meter had been disconnected October 28th, 1902. In the rear building basement were seventeen stalls; on the first floor fourteen stalls; on the second floor nineteen stalls, making a total of fifty stalls.
8. Premises located at 86 King Street; frontage rate, \$10; water closet, \$2; extra families, \$5; total, \$17; paid July 11th. In the basement was found a flourishing soda bottling business.

9. Premises located at 1683 Avenue A ; frontage rate charge, \$12 ; water closets, \$18 ; extra families, \$13 ; total, \$43 ; paid July 30. In the basement was being conducted a beer bottling business. Two sets of tubs of double width were used, water flowing for the purpose of washing bottles.
10. Premises located at 1525 Avenue A ; frontage rate, \$7 ; water closet, \$2 ; extra family, \$1 ; total, \$10 ; paid July 24th. In the basement was found a beer bottling establishment, in which two women were kept busy washing bottles at one long set tub, through which water was flowing.
11. Premises located at 4 Bedford Street ; frontage rate, \$10 ; extra families, \$3 ; total, \$13. In the basement was found a beer bottling establishment with two large set tubs for bottling and washing in use.
12. Premises located at 1521 Avenue A ; frontage rate, \$7 ; water closet, \$2 ; extra family, \$1 ; total, \$10 ; paid July 22nd. In the basement was found a bakery, which was said to have occupied the premises for eight years.

Errors in Records as to Fixtures and Extra Families.

No extended test was made to determine whether the classes of fixtures were accurately reported, except by the inspection of three blocks, in which a considerable portion of the houses were closed for the summer. The character of result obtained by this inspection is shown below :

	Rate charged	Rate which inspection indicates should have been charged
For extra families—		
250 East 2nd Street.....	\$11.00	\$12.00
226 East 3rd Street.....	9.00
27 Avenue C	14.00	16.00
21 Avenue C	25.00	26.00
Extra water closets—		
250 East 2nd Street.....	10.00	12.00
21 Avenue C	30.00	32.00
27 Avenue C	14.00	16.00
25 Avenue C	6.00	8.00
232 East 2nd Street.....	10.00	22.00
234 East 2nd Street.....	10.00	22.00
31 Avenue C	18.00	22.00
29 Avenue C	12.00	22.00
Total.....	\$160.00	\$219.00

As to the premises listed, it is evident that the charges made should have amounted to \$59, or 36% more than was actually charged. While this is a very narrow and unsatisfactory basis for reaching broad conclusions, the result is significant of need for administrative attention.

General Conclusions.

The general conclusions reached as a result of the Bureau's study of the frontage rate branch are:

- (1) That with respect to the first condition necessary to establish frontage rate charges (front feet), the percentage of error is small.
- (2) That the second condition (number of stories) is fairly well reported.
- (3) That the third condition (different classes of use) contains an error of about 9%.
- (4) That the fourth condition (different classes of fixture) contains a considerable percentage of error.

The last condition applies to all frontage rate properties, and considering that several millions of dollars are received from this class, the total revenue loss must be very large.

SECTION II.—METER RATE BRANCH.

With respect to meter rates, it was found by tests of meters, by inspection of properties metered, and by analysis of records, that not one of the conditions suggested on page 26 as being necessary to the accurate determination of charges for the use of metered water was present.

Meter Conditions in General.

Meters in use do not accurately determine amount of water used.

Under the rules of the department, there are twelve different kinds of meters authorized for installation. In the first place, a percentage of error must be allowed for all meters, even when in perfect condition. At the time of our examination we were told by an engineer in the department that none of the makes of meters when in good repair would stand the test of having the same flow

or stream of water pass through from ten to twenty meters set in line on one service pipe. This is to be considered as a defect not in administration, but in the character of mechanical instruments with which the meter service must be equipped.

It was also found that the second condition to accurate measurement was not present, viz., a mechanical device for determining the flow, which may not be tampered with without prompt discovery. The meters at present in use are put together with screws, and any part may be readily detached, impaired and replaced in impaired condition. Moreover, the dial head, the glass protecting the dial, the dial case, the clock work, the lugs engaging the spindle, the spindle, the valve, the base supporting the valve—in fact, any part of the meter—is readily accessible to the owner or to any person who may have an interest in reducing the record of use. It has been stated, both in the department and out, that a considerable number of past employees of the department are regularly engaged in going about from user to user, making a business of impairing meters.

Meters easily tampered with.

Such impairments as the breaking of the glass on the dial, the breaking of the dial or the removal of the pointers may be easily detected and promptly reported. This, therefore, would not be as profitable a source of impairment as one which would require the removal of the meter or an inspection of its inner parts to effect discovery. One of the most accessible impairments is to loosen the pointers, thus enabling one to turn back the measurement to any point desired. This is readily accomplished, for the reason that the pointers are put on in such a manner that they may be loosened with the fingers, and when loosened the inspector cannot ascertain the correct registration. If the pointer stands at 90,000, it only requires that the pointer be moved one point to cancel a water charge of \$90. If the use of water be relatively small, the 10,000 pointer may be tampered with without discovery; or if, again, the consumption is such as to make this conspicuous, the 1,000 dial pointer may be turned.

Some impairments not readily discovered.

Going below the dial face, the gearing which moves the pointers may be impaired by having one or more cogs removed, thus as the meter turns the pointers will cease to rotate, until by chance the wheel on which the cog is missing re-engages, giving to the water user the benefit of the unmeasured flow. Again, the lugs engaging the spindle may be filed down so that there is only a friction contact at the points instead of a regular engagement. Such a contact

would cause the meter to register regularly, but would reduce the index record in inverse proportion to the friction contact. Another possibility is to have the spindle bent to produce a result similar to filing the lugs, or in such manner that the spindle in rotating will alternately engage and disengage the lugs. Another possibility is that the bottom of the meter may be taken off and the valve extracted from the casing; since it is known that the meters are read not oftener than every two or three months, the valve, after a reading has been taken, may be removed from one month to six weeks with impunity and then replaced.

Wearing of a valve.

All of the foregoing impairments have relation to a meter in which the valve is perfect. It is a well-known fact, however, that the sand and foreign particles which come to the meter in use cause the valve to wear, thus constantly increasing the leakage with age. Some of the meters in the city have been in place for many years. It was stated at the repair shop by a department employee that many of these meters would register only at a relatively high velocity of flow.

Negligence in not taking steps to protect the city.

The department has taken few administrative steps to protect the city against loss of revenue on account of impairment of meters. A seal has been provided and the dial cases are sealed with wax. These seals, however, soon become effaced or illegible, thus permitting anyone to remove the dial case or any of the parts connected with the dial and to reseal the case again, having the wax appear as dirty or illegible, thus avoiding suspicion of tampering. Moreover, in many instances the bottom of the meter may be removed without disturbing the seal, and the cogs working the spindle may be filed or the valve extracted without detection.

If the Water Department would require as a condition precedent to the installation of water, that the meters be located in a place easily accessible to the department's inspectors, and also require that meters be so constructed and protected that the owner may be held responsible for the integrity of the meter as against physical violence; and if in addition to this the meter were so sealed that no part could be removed or the seal impaired, without prompt detection, it goes without saying that the revenue of the city from this source might be very largely increased.

Meters not properly set.

Other conditions necessary to protect the city have not been complied with. Meters are not always properly set. When both metered and unmetered water is used on the same premises, accurate information is not at all times available as to what part of the prop-

erty has been metered. The city is not properly protected against by-passes. With the present method of meter reading and meter inspection the city has not the means of determining whether meters are in repair. Instead of making provision in the plumbing for the use of a testing meter at the time of inspection, the "picking up" of a meter is made a laborious and expensive process. When meters are removed for repairing, they are not promptly replaced. In instances where meters are permanently removed, the proper information is not always given to place the property on a frontage basis. Until recently, no steps were taken to protect the city against false readings, false reporting of readings and incorrect records of water used, and at the present time the measures taken are incomplete. While from a single inspection, it could not be determined whether the meters indexes had been properly reported, the system in use does not protect the city against neglect, incompetency and fraud. So long as this condition prevails, only one result may be expected—that the city will not obtain all its revenues and that the premium placed on dishonesty will preclude the building up of an efficient and honest service.

Other conditions necessary to protect the city not present.

The following conclusions of fact may be drawn :

1. On more than half of the premises visited, unmetered water might easily be taken, abundant opportunity existing for taking water between the ~~meter~~ and the street through hidden pipes or by-passes.
2. Adequate tests by turning off the metered water can readily be made in only a few of the large plants, because of the following impediments:
 - (a) Several metered services from the street mains.
 - (b) Tanks on the roof without shut-offs.
 - (c) Presence of water in wells.
 - (d) Interruption of operation of the plant.
 - (e) The time necessary to "pick up a meter."
3. Some of the meters are so located that they are inaccessible to inspectors and readers.
4. Some meters are so covered with dirt and mud, manure, water or refuse that is impossible to tell, even after access is gained, whether they are sealed and in good condition.
5. Many of the meters are out of repair or in such condition as to make them ineffective.

6. The "picking up" of meters is unnecessarily expensive, and the opportunities for inaccuracy of inspection tests are many.

Examples of Meter Conditions.

As showing the condition of meters, the following examples, obtained by field inspection during August and September, 1907, are given :

Some of the conditions found on the properties visited.

Property located at 261 Tenth Avenue was recorded as properly metered. The last reading shown by the meter books was February 28, 1905. On the meter books no change is noted as having taken place on May 21, 1903. In the building were found 23 stalls, all in use; also among the equipment was found a wagon used by a Deputy Water Commissioner. Access to the pipes was through the cellar of 259 Tenth Avenue, which was piled high with old wood. No meter could be located, but a leak was found.

Property located at 426 East 104th Street was recorded as metered. The last reading as shown on the meter ledger was May 11, 1903. The meter charge was \$16.90. Bill notation, February 8, 1904. No record since. In a shed on the premises were found 30 stalls in use. The meter was knocked over, the dial was blank, the glass and seal were gone.

Property located at 462 West 26th Street was recorded as metered. The property was found to be occupied as a brewery with four meters in use. One of these meters, through which a large amount of water seemed to pass, could not be read as the glass on the dial was painted white or pigmented on the underside. The city books showed for this meter a reading that gives a charge of over \$1,000, yet the glass was rusted in and the seal intact.

Another instance may be noted : Property located at 130 West 32d Street was recorded as metered. The inspector, on visiting the premises, found it to be occupied as a stable, and on inquiry was first shown two meters, but was told that these were the only meters in use. After further inspection, on persistent inquiry he found that the stable was equipped with four meters, one of which was "being repaired"; a second had one hand lacking, one hand bent and no glass, while a third was so covered with dirt that it was impossible to tell whether it was properly sealed.

Inspectors' Books—Neglected Meters.

General knowledge in regard to conditions like those cited above led the Bureau of Municipal Research to inquire into the character of reports made by inspectors and the data shown on the field books, for the purpose of obtaining a basis which would be broad enough to warrant a conclusion as to the condition of the records. The reports on 6,028 meters, or 12% of the estimated total number in Manhattan, were examined for a period extending from January 1, 1906, to September 30, 1907. Of this number 2,919, or 48%, were shown by the records as having remained in a defective condition or inaccessible to the inspector for more than two months after having been first reported to have been in such condition. These 2,919 meters are here classed as "neglected." A detailed statement follows, covering: (1) the nature of reported defects; (2) the reasons reported for inaccessibility for all meters with regard to which this condition is recorded.

Analysis of
records of
neglected
meters.

Reported Defective Conditions of Meters.

<u>Conditions Reported</u>	<u>Number of Meters</u>
Dial dirty	330
Glass—	
None	245
Broken	72
"Crystallized"	9
	— 326
No lid	207
No tag	112
Pointers—	
Off	74
Slow	47
Loose	17
	— 138
Spindle leaking	85
Not registering	67
Hood—	
Broken and loose	49
Off	14
	— 63
Out of repair	29
Meter broken	15
Meter working backward	5
Disconnected and on premises	8
Stolen	2

Reported Defective Conditions of Meter Seals.

<u>Conditions Reported</u>	<u>Number of Meters</u>
Illegible	1,379
Buried and obstructed.....	293
No seal	391

Reported Reasons for Inaccessibility of Meters.

<u>Conditions Reported</u>	<u>Number of Meters</u>
Locked	349
Unspecified obstructions.....	173
Covered by fuel and other storage.....	163
Vacant and locked.....	88
Buried	63
Covered by water.....	51
Constructions, alterations, etc.....	49
Partial obstruction due to position of meter..	17

In addition to the neglect of conditions listed above, the records showed that 39 meters had not been visited for a period of more than six months.

Average Period of Neglect.

For the purpose of ascertaining the average time during which the different classes of conditions was permitted to continue, the total time of neglect was taken of a sufficient number of meters to warrant a general conclusion. As the same meter is not infrequently neglected for more than one period, on account of defects reported at different times, the total time for which any given meter is considered to have been neglected is sometimes the sum of two or more periods. The results obtained are given below:

	<u>Number of meters considered</u>	<u>Average time of neglect per meter reported during the 21 months</u>
Neglect of conditions of all		
kinds	969	15 months
Neglect of seal conditions...	1,091	14 months
Neglect of other conditions.	973	10 months

Inspections on Neglected Meters.

The 2,919 neglected meters were inspected during the 21 months under consideration as follows:

Total number of inspections—24,769.

Average number of inspections per meter—9.

Average frequency of inspection of meter—2 1/3 months.

The number of successive inspections or inspections made by the same man consecutively was 9,888, or 40% of the total number, a number and percentage far in excess of the successive inspections shown on the same books prior to January 1, 1906.

Recorded Condition of Neglected Meters at the Date of Examination.

Of the total number of meters which were neglected during the 21 months subsequent to January 1, 1906 (2,919), the condition as shown on the records September 30, 1907, is as follows:

Neglected conditions fully remedied prior to September 30, 1907—866, or 30%.

Neglected conditions not fully remedied prior to September 30, 1907—2,053, or 70%.

Of these, the condition had been partially remedied in 488 cases; in the remaining 1,615 cases no steps whatever had been taken to remedy defects.

Of the 2,053 meters shown on the records examined to have been in a condition of neglect September 30, 1907, the cases relating to seals only were 1,041, or about 50%, while those relating to parts other than the seal were 1,012, or slightly less than 50%.

Meter Ledgers—Neglected Accounts.

Following upon the examination of the inspectors' books, the results of which are given above, an examination of 20 meter ledgers was made, in the course of which many accounts were noted which had remained open for long periods of time, during which no entries of readings or charges and no explanations appeared. Among such accounts, 258 had remained open prior to September

30, 1907, for a period of more than one year, 253 others for a period of more than 21 months, 76 others for a period in excess of 3 years, and 31 others for a period in excess of 7 years.

The Averaging of Meter Charges.

A practice resulting from meter neglects is the averaging of charges for the period during which meters are recorded in the meter ledgers as out of order. In the twenty ledgers reviewed to determine the extent of this practice, the total number of accounts examined was 8,238, or about 17% of the estimated total number. The number of these accounts in which averaging had occurred during the two years from November 1st, 1905, to November 1st, 1907, was 1,767, or 22%. The average period during which these meters were not registering was 214 days. In 229 accounts, 2.7% of the number of ledger accounts examined, the average period during which water was not metered was 582 days; in 78 of the accounts averaging occurred twice in two years.

The method used in averaging charges is as follows: After the meter has been reset, the first or second reading is divided by the number of days from the date of reset to the date of reading. The average consumption per day ascertained by this method is then applied to the period for which there was no meter reading.

Reduction of
averaged
charges.

An analysis of the accounts shows that there had subsequently been very large reductions in the charges as originally averaged and billed. Examples of these are as follows:

1. Section 2, ledger 14, page 145:

Averaged for 322 days,		
Bill rendered March 18, 1907, for	\$255.50	
Bill modified to.....	194.10	
Reduction		\$61.40

2. Section 3, ledger 10, page 206:

Averaged for 182 days,		
Bill rendered Oct. 29, 1906, for..	\$769.90	
Bill modified to.....	369.90	
Reduction		\$400.00

3. Same account as 2:

Averaged for 262 days,		
Bill rendered Oct. 29, 1906, for..	\$3,476.10	
Bill modified to.....	2,342.90	
Reduction		\$1,133.20

4. Section 3, ledger 10, page 207:

Averaged for 119 days,

Bill rendered April 13, 1907, for.	\$147.50	
Bill modified to.....	82.00	
Reduction		\$65.50

5. Section 3, ledger 10, page 294:

Averaged for 268 days,

Bill rendered Oct. 29, 1906, for..	\$12,703.30	
Bill modified to.....	10,637.10	
Reduction		\$2,066.20

The practice of modification is defended on the ground that there is no legal basis for collection of such averaged charges for metered water. We are informed by the Water Register that it has been held by the Corporation Counsel that when property is on a meter basis, the city is under obligation to charge according to the meter readings, and will not be permitted to enforce a claim based on an arbitrary charge. This legal defect was remedied by legislation passed by the last Legislature. The policy of the Water Register, therefore, has been to state the account at the full averaged amount and to settle on the best terms possible.

A still broader basis for showing the practice of averaging bills is found in a memorandum submitted by the Commissioner in answer to statements made by a representative of the Bureau at a conference. The data contained on this memorandum are of two classes, the first showing bills averaged during the year 1906 and the second bills averaged subsequent to February, 1907. In the first part are included 2,140 cases of bills averaged, some of which were based on defective meters which had been in use for a period exceeding four years, the average period of all the cases included within this class being 232 days. In the second part are included 1,517 cases of bills averaged, some of which are based on defective meters which had been in use for a period exceeding 570 days, the average period of all the cases included within this class being ninety-nine days. The total amount of bills averaged within the last two years was stated by the Water Register to be about \$1,800,000.00; the Water Register further states that these bills were settled for about 50% of the full amount of the accounts. He further states, however, that in making the settlement, the 50%, or approximately \$900,000.00, received is a clear gain to the city, as he has been advised by the Corporation Counsel that the

claims could not be legally enforced. Whatever be the facts in the case, it is evident that the loss to the city has been very great; that a large part of the loss could have been avoided by more effective administration; that by permitting such conditions to exist the city is not only depriving itself of revenue, but maintaining a system which places a very large premium on dishonesty and inefficiency.

SECTION III.—BUILDING PURPOSES AND TAPS BRANCH.

During the course of the work in the Water Register's Bureau, examining and reporting upon the present system and preparing constructive suggestions for a reorganization of the bureau as a whole, the Water Register gave it as his opinion that the city was not obtaining from this branch of the service, in particular, the full revenue to which it was entitled under the ordinance, and suggested giving it special attention. Acting upon this suggestion, a special investigation was undertaken covering the period from January 1 to March 31, 1907, it being considered that the charges for water used during construction for buildings or alterations recorded during that period should or would have been collected by December, 1907, the date at which this investigation was commenced. The object of the examination was to determine:

1. The accuracy of the charges made for permits for all projected buildings and alterations published in the *Record and Guide* during the period under review.
2. The estimated loss, if any.
3. The reasons for inaccuracy and loss.

Inaccuracy of charges was established beyond question. The amount of loss was estimated for the reason that the time required to compute it accurately from the plans on file at the Building Bureau (1 man, two years) would not be justified by the greater accuracy of result which would thus have been obtained. The cases investigated occupied the time of one estimator over two months at the Building Bureau, irrespective of all other time spent on this investigation. That the Water Register's opinion of this branch was not without foundation is shown in detail later in this report. From the several cases investigated it would appear that

the revenues obtained for water used for building purposes during the period were less than they should have been by anywhere from 25 to 80 per cent.

Some of the more **flagrant undercharges** (indicating to what extent the revenue of the city from this branch might be increased) are given below.

Department Permit No.	Department's Charge	Amount which should have been charged	Net amount over or undercharged	Percentage of over or undercharge
32,025	\$160.00	\$483.63	\$323.63	202%
32,985	160.00	487.30	327.30	204%
33,378	76.80	65.50	11.30*	14.7%*
33,303	99.40	173.40	74.00	74%
33,082	50.00	193.67	143.67	287%
33,170	2.12	13.65	11.53	543%

*Overcharge.

The information upon which the clerk establishes his charge is, as a rule, very meager, and is frequently given to him verbally by the contractor or builder. Owing to the lack of administrative control over this branch of revenue, the charges made by the clerk are not reviewed or questioned, and any practice may develop without the knowledge of the Water Register.

Information on which charge is based.

There is no well defined or rigid method of computing charges. The general practice which may be followed by the clerk at his pleasure or discretion is as follows:

1. The cubical contents of the outer walls of small buildings (six stories or less) are figured solid, *and no deduction made for openings*. The charge is then made for the quantity of brick or masonry (on the basis of 21 bricks per cubic foot), as produced by this calculation. This method is intended to cover and provide for any charge which should be made for plastering, interior brick walls, concrete, cement, fireproofing or any other material for which separate charges should be made.
2. The cubical contents of the outer walls of buildings over six stories are figured solid. *All openings are then calculated and deducted*. The charge for brick or masonry is made for the quantity thus produced on the basis of 21 brick per cubic foot. An attempt is then made to calculate the charge for plastering, interior brick walls, con-

Methods of computing charges.

crete, cement, fireproofing, etc.; the result is then added to the charge for brick or masonry and the permit issued for the sum of all charges.

3. It is usual to disregard any building or alteration upon which the charge for water to be used during construction is estimated to be less than \$1.00.

The clerk is not confined to any of the above methods or practices; he may at will calculate the charges for a permit for a five, six or seven story building by either of the above methods. It is also a common practice to accept and calculate charges from any plan or sketch the applicant may present, irrespective of its approval by the building superintendent.

Present
system
described.

The present system in this branch may be briefly stated as follows: The basis of all the transactions and records of the building purposes and taps branch is the *Record and Guide*, a New York real estate publication, in which proposed building operations are published weekly in two separate classes:

1. Projected buildings.
2. Alterations.

In this publication are shown with respect to each improvement the location, class of building, nature of alteration, name of owner, builder and architect, and estimated cost. Having recorded this information in a register, the building purposes and taps branch issues a notice to the owner or contractor, as the case may be, requesting that he call, pay for and obtain a permit for the use of water during the period of construction.

This notice is issued under the authority given the Water Register in Section 475, Amended Greater New York Charter, and the "Rules Governing the Use of Water for the City of New York," issued by John T. Oakley, a former commissioner, dated May 1, 1905. This pamphlet treats rates for building purposes and rates for building purposes extras separately.

Rates for Building Purposes.

Building Purposes—10 cents per 1,000 brick. All masonry at the same rate, 500 brick being equal to one cubic yard.

Note.—Concrete, cement, fireproofing, floors and arches are considered and treated as "masonry."

Plastering, 40 cents per 100 square yards, openings not included.

Rates for Building Purposes Extras.

Pile drivers and hoisting engines (without regard to the pressure or horse power) at \$5.00 per month.

Boilers and engines for excavating and drilling rocks at the following scale of charges:

5 H. P. Boiler.....	\$4.17	per month		
10 " " "	8.33	"	"	
12 " " "	9.58	"	"	
15 " " "	11.45	"	"	
20 " " "	13.54	"	"	
21 " " "	13.97	"	"	
23 " " "	14.79	"	"	
25 " " "	15.62	"	"	
26 " " "	16.05	"	"	
30 " " "	17.70	"	"	
35 " " "	19.79	"	"	
40 " " "	21.87	"	"	
45 " " "	23.95	"	"	
50 " " "	26.04	"	"	
60 " " "	30.20	"	"	
70 " " "	34.37	"	"	
80 " " "	38.54	"	"	
100 " " "	46.87	"	"	
120 " " "	55.16	"	"	

The basis upon which the rates for building purposes were established is that one common brick absorbs $\frac{3}{4}$ of 1 lb. of water; that the mortar absorbs $\frac{3}{4}$ of 1 lb. of water; that sand, cement, etc., absorbs $\frac{1}{2}$ of 1 lb. of water; that waste (normal) per brick is 1 lb. of water—total, 3 lbs. per brick, or 3,000 lbs. of water per 1,000 bricks laid.

The charge for water consumed when *registered by meter* is 10 cents per 100 cubic feet (6,250 lbs.). Therefore, it is apparent that at 10 cents per 1,000 bricks (3,000 lbs. of water) the permittee is paying approximately more than double the amount he would have to pay did he limit the waste to normal and register the consumption by meter. It is generally accepted that the waste is not limited to normal and that during the progress of construction the waste is extraordinary, principally due to the fact that hose is usually attached to hydrants or taps and allowed to run continuously at

least during the daytime. To the end that the city might recover for such extraordinary waste, and to encourage consumers to install meters, the rate was set at 10 cents per 1,000 brick (3,000 lbs. of water), equal to 20.82 cents per 100 cubic feet of water. This procedure has, however, proved abortive in practice as the basis of the rate, 10 cents per 1,000 brick, is known generally to contractors and builders to be approximately double what they would have to pay if registering by meter; consequently, they in turn resort to devious ways and means to evade the charge, exhibiting to the clerk plans in such form that he is unable to determine quickly the amount chargeable, which results in a certain amount of haggling and discussion, and the clerk, at his pleasure or discretion, issuing a permit for from 25% to 80% of the amount properly chargeable under the ordinance.

At the same time that the record is made in the register from the *Record and Guide*, an entry is supposed to be made in an inspector's book, classified according to the location of the property; and an inspector is supposed subsequently to inspect and enter in this book a report upon the projected building or alteration. Each month, or oftener, the clerks are supposed to examine the inspector's reports and follow up the proposed building operations. For some time prior to the bureau's investigation this record had not been kept up, and no systematic notices had been sent to delinquent builders or owners, the clerk stating that no inspectors had been attached to his branch of the service for several months.

Division A—Building Purposes.

For the purpose of this inquiry, the classifications of the *Record and Guide*, "projected buildings" and "alterations," have been retained:

Total estimated cost of proposed buildings and	
proposed alterations.....	\$21,495,046.64
Total estimated cost of pro-	
posed buildings.....	\$15,514,810.14
Total estimated cost of pro-	
posed alterations.....	5,980,236.50

Each of these two classes subdivides itself as follows:

Sub-Division 1. Those upon which water charges had been collected.

Sub-Division 2. Those for which no charges had been made for the reason that they are:

- a. Fully metered, or have been treated as,*
- b. Exempt.*

Sub-Division 3. Those finished, partly finished or not commenced, upon which no charge had been collected (at date of investigation).

Sub-Division 4. Those not recorded because "too small" for consideration.

Considering the work of the building purposes and taps branch in this order, the following results are obtained:

Sub-Division No. 1.

*Projected Buildings
and
Alterations.*

*Upon which Water
Charges Have Been
Collected.*

Estimated cost of projected buildings.....\$12,407,500.00
Estimated cost of alterations..... 3,293,600.00

In this sub-division four cases were selected at random for computation of charges under the rules which govern the department, with the following results:

	Permit No. 32985		
	B. M. R. Calculation	Water Dept. Charge	Amount undercharged
Stone	\$28.30	nil	\$28.30
Brick	185.77	\$126.00	59.77
Fireproofing	37.80	34.00	3.80
Plastering	141.83	nil	141.83
Floors and Arches..	93.60	nil	93.60
	<hr/> \$487.30	<hr/> \$160.00	<hr/> \$327.30

This plan was for an apartment house at the corner of 67th Street and Lexington Avenue. The clerk determined the charge by *adopting the same amount* as had been charged for a building on the corner of East 66th Street and Lexington Avenue, erected in 1905 (permit No. 32025).

The method followed by the clerk in calculating the amount to be charged for permit No. 32025 for the building on the corner of East 66th Street and Lexington Avenue, upon which the charge for permit No. 32985 was based, was as follows: First, a rough

**Method of
calculating
charges.**

sketch was drawn by the clerk on the back of the notice. The total area of the openings as shown in this sketch is 14,898 sq. ft. The total of the openings as calculated from the plans on file is 17,294 sq. ft.

The quantity of brick was then calculated from this rough sketch by a rule of thumb formula, thus:

The total number of lineal feet was approximated from the rough sketch as 586; this was multiplied by the height of the foundation (10 ft.), and 910 sq. ft. deducted for openings; the result was multiplied by 35, this latter figure being a factor representing a wall 20 in. in thickness on the basis of 21 brick to 1 cu. ft. This calculation gives a result of 173,250 brick for the foundation.

The height from the top of the foundation to the top of the fifth floor was approximated from the rough sketch as 51 ft. The number of lineal feet was then multiplied by this figure, giving a result of 29,886 sq. ft. From this result was deducted 5,544 sq. ft. for openings. This, however, is the total of the openings on the second, third, fourth and fifth floors only. The openings on the first floor, 1,341 sq. ft., were not, for some unknown reason, deducted. The product 24,342 was then multiplied by 27 upon the same basis as the foundation, *i. e.*, 21 brick to the cubic foot, the walls on these floors being set down as 16 in. in thickness. This gives a total number of 657,234 brick for these five floors.

The height from the top of the fifth floor to the top of the tenth, *i. e.*, 50 ft., was then taken from the rough sketch and multiplied by the number of lineal feet, giving a product of 29,300, from which was deducted 7,103 ft. for openings. This remainder, 22,197, was then multiplied by 21 (the number of brick in 1 cu. ft.), for the reason that the walls of all stories above the fifth floor are shown on the rough sketch as 12 in. in thickness; this gives a product of 466,137 brick.

The total number of brick to be used, therefore, sums up to 1,296,621. This product was then transferred to another sheet.

A calculation was then made at the rate of ten cents per thousand brick, giving a product of \$129.60, to which was added \$34.00 for concrete and fireproofing.

This amount, \$34.00, was arrived at by calculating the number of square feet on the ground floor (10,303 sq. ft.), and multiplying this by the number of stories (10) in the building, thus obtaining what is stated to be and used as the total number of

square feet (103,030 sq. ft.) of concrete and fireproofing in the building. On the verbal statement of the permittee that the concrete and fireproofing averaged 8 in. in thickness, the product of 68,000 cu. ft. was arrived at. For some unknown reason this total number of cubic feet was then divided by four. There appears to be a clerical error here, as the figure appears to have been intended for "one-half." This process reduced the total number of cubic feet to 17,000, which, at the rate of 20 cents per hundred cubic feet, produced the amount of the charge, namely, \$34.00. The clerk who made the calculation is unable to state why the number of cubic feet was reduced to one-quarter of the total. Had the charge been made for the total number of cubic feet (68,000), it would have been \$136.00. It is estimated by calculating from the plans that the charge should have been \$131.40, a small difference only; it would appear, therefore, as if some explanation of the reduction of the total number of cubic feet from 68,000 to 17,000 were necessary. A memorandum appears on the clerk's calculations to the effect that someone "will send statement."

Subsequent to determining the charge of \$163.60, it was found that the openings on the first floor, 1,341 sq. ft., referred to above, had not been deducted from the second calculation, the clerk having deducted 5,544 sq. ft. for openings, instead of 6,885 shown on the sketch.

Calculation was then made, showing that had the openings on the first floor been deducted, it would have resulted in a lesser product by \$3.62. Thereupon the clerk deducted the sum of \$3.60 from his calculation of \$163.60 and made a charge of \$160.00. The result was obtained apparently on December 23, 1905.

From the data it would appear as if application for a permit had been made on December 18, 1905, and an attempt made and abandoned, to arrive at a charge on that date, as a note appears on this sketch to the effect that someone has been requested to "give sketch or plans." Below in parallel columns will be found data showing some of the principal differences in the method of establishing a basis for calculation:

<i>Data Taken from the Records of the Building Purposes and Taps Branch.</i>	<i>Examination of the Plans on File in the Building Bureau Show:</i>
The charge is figured from a rough sketch, showing the out-	That the sizes of openings, the heights of floors and thick-

line of floor plan of the building, height of stories, thickness of walls and sizes of openings.

nesses of walls as shown on the rough sketch are incorrect in every particular.

Fractional parts of a foot have not been considered in calculating the dimensions of floor plans.

Sketch shows:

90 ft., 50 ft., 40 ft., 52 ft., 33 ft., 50 ft., 33 ft., 18 ft., 51 ft., 170 ft.

Fractional parts of a foot should be considered for the reason that these dimensions establish a basis for calculating the charge. The plan shows:

90 ft. 5 in., 50 ft., 39 ft. 9 in., 52 ft. 4 in., 32 ft. 9 in., 49 ft. 8 in., 32 ft. 9 in., 18 ft., 50 ft. 7½ in., 170 ft.

Sketch does not show any interior walls; outside walls only have been considered.

Plans show that all partitions in basement are of brick, and all other floors have 12 and 8-in. brick walls surrounding elevators, stairs and vent shafts. A stone area wall supports the sidewalk.

The building has been considered as a ten-story structure, the eleventh story and bulkhead having been ignored.

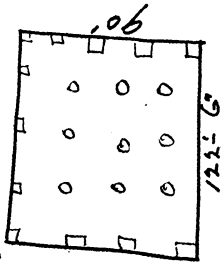
Plan shows mezzanine floors, an eleventh floor, and a bulkhead.

Charge for
the building
adopted for
another.

In this particular case it is of additional interest to note that a permit was issued in December, 1905 (No. 32025) for \$160.00, for which the permittee should have paid \$483.63, entailing a loss to the city of \$323.60, and that about one year afterwards, in January, 1907, another permit (No. 32985) was issued for the same amount—\$160.00—although for another building, for which the permittee should have paid \$487.30, entailing a further loss to the city of \$327.30. The clerk states in explanation "that they said the buildings were the same." The facts are that the buildings were designed by different architects and are owned by different proprietors, the elements of similarity being that they occupy approximately the same ground space and *were built by the same contractor*. This procedure could be carried on indefinitely under the present system without check of any kind.

Sketch No. 1.

252 to 262 77408
33378



$$\begin{array}{r} 135 \\ 15 \\ \hline 150 \\ 135 \\ \hline 15 \end{array}$$

$$\begin{array}{r} 12 \\ 12 \\ \hline 24 \\ 12 \\ \hline 36 \\ 12 \\ \hline 48 \end{array}$$

$$\begin{array}{r} 425 \\ 25 \\ \hline 450 \end{array}$$

$$\begin{array}{r} 25675 \\ 25 \\ \hline 641875 \end{array}$$

$$\begin{array}{r} 28475 \\ 16 \\ \hline 455600 \end{array}$$

$$\begin{array}{r} 199328 \\ 52950 \\ \hline 768825 \end{array}$$

\$ 76.80

Sketch No. 2.

33378 H 562.1 1/2
W 450.0 1/2
1/2 to 1/2 near 400x

1.45-3.40

90x122

will be 1/2 1/2 1/2 1/2
H 562.1 1/2
W 450.0 1/2

$$\begin{array}{r} 122 \\ 122 \\ \hline 14880 \\ 122 \\ \hline 3.80 \end{array}$$

$$\begin{array}{r} 14880 \\ 3.8000 \end{array}$$

\$ 76.80 Aug 26/07

Some of the weaknesses of this branch of the Register's Bureau are well demonstrated in the foregoing cases; the loss to the city on these two permits alone averages \$325.00 each, and they are not, it is believed, extreme cases. Loss to city
from under-
charges.

This branch issued 964 regular permits in 1906, and 652 in 1907. When this is taken into consideration in conjunction with the fact that there is an entire lack of administrative control, and that two or sometimes three clerks have practically unlimited power in this matter, the conclusion that the Water Register's opinion of this branch of the city's service is well founded is unavoidable. It illustrates further the abuses which may arise and continue indefinitely under a system which allows so much scope to subordinates.

Permit No. 33378

This permit was for a four-story stable on West 40th Street, for which the permittee was overcharged \$11.30. This was due to the fact that the clerk calculated the walls "solid" and neglected to deduct the openings. The method by which the clerk arrived at the amount charged for this permit is shown on sketches 1 and 2.

First a rough drawing was made, as shown on the upper portion of sketch No. 1. This rough drawing shows the depth of the building as 90 ft. The plans on file in the Building Bureau show it to be 95 ft. 9 in. The rough drawing does not show any extension below the curb. The plans on file in the Building Bureau show a 15-ft. extension under the curb, the walls of which are built of brick. The clerk calculated as follows: First by doubling the frontage, as shown by the rough drawing, *i. e.*, 122 ft. 6 in. by 2 equals 245 ft. To this was added double the depth of the building, *i. e.*, 180 ft., giving 425 lineal feet for the ground floor. He then estimated the height to be 67 ft., *i. e.*, 13 ft. plus 15 ft. plus 26 ft. plus 13 ft. equals 67 ft., as shown on the rough drawing. The plans on file in the Building Bureau show the heights to be 12 ft. 6 in., 15 ft., 13 ft., 13 ft., 12 ft. 6 in., a total of 66 ft. in height. The lineal measurement of the building was then multiplied by the height, giving a product of 28,475 sq. ft. This product was then multiplied by 27, giving a product of 768,825 brick, openings not deducted. The clerk obtained this factor 27 by taking an average thickness of 16 in. for all walls. The plans on file at the Building Bureau show thickness of the walls: basement, 20 in., first, second and third floors 16 in. each, and fourth floor 12 Method of
calculating
charges.

Permit No. 33082.

This permit was issued for water³ to be used during the construction of two six-story houses on Amsterdam Avenue. A comparison of the amount paid in this case for the permit and the amount which should have been paid is as follows:

	B. M. R. Calculation	Water Dept. Charge	Amount Undercharged
Stone	\$23.80	nil	\$23.80
Brick	95.20	\$50.00	45.20
Concrete and Cement..	5.48	nil	5.48
Fireproofing	2.76	nil	2.76
Plastering	60.07	nil	60.07
Floors and Arches....	6.36	nil	6.36
	<hr/> \$193.67	<hr/> \$50.00	<hr/> \$143.67

The amount paid by the permittee was arrived at by the clerk in the building purposes and taps branch as follows:

Method of
calculating
charges.

A rough sketch was made by the clerk, either from a verbal description or from a plan submitted to him at the time. Taking this rough sketch as a basis, he calculated the total number of lineal feet. This figure was then multiplied by 70, which is a rough calculation of the height of the building in feet. This product was then multiplied by 21 on the assumption that the walls were uniformly 1 foot thick all through the building. This gave a product of 796,740 brick, exclusive of the foundations. The brick in the foundations was then calculated to be 65,040, making a total of 861,780 brick in the building. The openings were then roughly calculated to equal a total of 353,400 brick. This was then deducted from the original quantity—861,780—leaving 508,380 brick, which, at the schedule rate of 10 cents per thousand brick, amounts to \$50.83. The cents were disregarded and the permit issued for \$50.00.

It is worthy of note in this instance that brick is the only material for which a charge was made, and that only a little more than half the amount chargeable for this material was collected. No charge was made for stone, concrete, cement, fireproofing, floors and arches or plastering, although for the latter material alone, a charge of \$60.07 should have been made.

Sub-Division No. 2.

<i>Projected Buildings and Alterations.</i>	*	<i>Fully Metered and Treated as Exempt.</i>
Estimated Cost of Projected Buildings:		
Fully metered.....	\$650,500.00	
Exempt	1,532,500.00	
	<hr/>	\$2,183,000.00
Estimated cost of Alterations:		
Fully metered.....	\$777,325.00	
Exempt	25,000.00	
	<hr/>	\$802,325.00

Projected Buildings and Alterations Fully Metered.

No systematic check on inspectors' reports.

When an inspector reports that a projected building or alteration is "fully metered"—i. e., that the water for building purposes passes through a meter already recorded in the Water Bureau, and that the water billing division will, in due course, issue a bill—the clerks in the building purposes and taps branch ignore the projection so reported without further check or inquiry. There is no indication that the clerks in the building purposes and taps branch make any systematic attempt to vouch the accuracy of the inspector's reports by checking them to the books of the meter billing division, although we are given to understand that this is done occasionally. The result of this neglect is that where an inspector has been misinformed by an owner, a contractor or his representative, or has on his own part made a careless inspection, or where a meter has been installed after the building has been completely constructed, and the inspection made after a long delay, the city is deprived of the revenue which would accrue from the adjustment that would follow the discovery of such misinformation or carelessness.

The investigation of this particular sub-division developed the fact that buildings or alterations reported by the inspectors as "fully metered" have, in some instances, not been metered until after the building has been finally completed. Assuming that the inspector makes his report in good faith, he neglects to ascertain whether the water used during the construction period had passed through the meter, notwithstanding that it is or should be within his knowledge. If the meter had been installed after the building

had been constructed, his reporting the building as fully metered would preclude any further action on the part of the clerks in the office, and a consequent loss to the city.

Projected Buildings and Alterations Treated as Exempt.

At the time the list of projected buildings and alterations published in the *Record and Guide* for the period from January 1, 1907, to March 31, 1907, was being analyzed and classified for individual investigation, the bureau's investigator was given to understand that certain public buildings were "exempt." Following is a list of projected buildings so exempted during the period covered by the investigation:

Date published in <i>Record and Guide</i>	Plan No.	Description	Estimated Cos of Buildings
Jan. 26, 1907	30	Public Baths, Rutgers Place.	\$160,000
Feb. 9, 1907	55	Nurses' Home, Blackwell's Island	225,000
Feb. 9, 1907	56	Public Building, Blackwell's Island	25,000
Feb. 16, 1907	69	Bellevue and Allied Hos- pitals, 1st Ave., between 28th and 29th Sts.....	800,000
Mar. 9, 1907	120	Public Building, Blackwell's Island	50,000
Mar. 9, 1907	121	Public Building, Blackwell's Island	50,000
Mar. 9, 1907	122	Public Building, Blackwell's Island	120,000
Mar. 9, 1907	123	Public Building, Blackwell's Island	25,000
Mar. 9, 1907	124	Public Building, Blackwell's Island	20,000
Mar. 9, 1907	125	Public Building, Blackwell's Island	54,000
Mar. 23, 1907	153	Bellevue and Allied Hos- pitals, 1st Ave., between 28th and 29th Sts.....	3,500

In addition, the following projected alterations were treated as exempt:

Plan No.	Description	Estimated Cost of Alterations
166	Roosevelt Hospital	\$5,000
220	New York City Building	10,000
221	New York City Building	10,000

During the progress of the investigation, permit No. 33853 was issued on May 5, 1908, for \$60.00 for water to be used during construction on the public bath building in Rutgers Place, and permit No. 34079 was issued on July 24, 1908, for \$125.00 for a nurses' home on Blackwell's Island.

No explanation of exemptions.

In the absence of any statute or city ordinance under which the contractors having in hand the construction of the foregoing buildings could be legally exempted from a charge for the water to be used by them during the progress of construction, no reasonable explanation can be offered by this branch for postponing the collection of the proper charges until this late date. We are given to understand that a concerted effort is now being made to collect the charges on the balance of these so-called exempt properties.

An interesting item in the foregoing list is plan No. 69 for the Bellevue and Allied Hospitals, published in the *Record and Guide* on Feb. 16, 1907, estimated cost of buildings, \$800,000, for which no permit has at this writing been issued.

Sub-Division No. 3.

<i>Projected Buildings and Alterations.</i>	<i>Reported as Finished, Partly Finished or Not Commenced.</i>
---	--

Estimated cost of Projected Buildings..... \$870,360.14

Estimated cost of Alterations..... 660,350.00

On March 1, 1908, 28 projected buildings were reported by inspectors as either finished, partly finished or not commenced. At that date no charge had been collected for these items. Since March 1, 1908, charges on 9 of the above items have been collected, leaving 19 still to be accounted for, on 5 of which the report "building finished" and on 1 of which the report "half finished" had been made. An entry of 1 item was made in the wrong inspection book during March, 1907; the inspector finding that

the building was not in the district covered by him, noted the correct district in the inspection book. As recently as June, 1908, 15 months after the original notation, the correction and transfer to the proper inspection book had not been made. Operations had been suspended upon 2 of these items; 2 were fully metered and 8 had not been commenced. No reasonable explanation can be offered at this late date for neglecting to collect the charge on the 5 "finished," 1 "half-finished," and 2 buildings reported as "operations suspended," and the 1 incorrectly entered in the wrong inspection book.

On March 1, 1908, 59 alterations were still open upon the books and the charges uncollected. It is of interest to note that 18 alterations were reported by the inspectors as "too small" to form a basis for charges.

It is of further interest to note that many alterations estimated to cost \$500, \$1,000 and \$2,000 are registered and an attempt made to collect charges thereon. Eight items in this class have been reported by the inspectors as "building finished." Charges for the water used during construction have not yet been made.

Permit No. 33907.

To further illustrate the inaccuracy with which charges were made, a projected building which had been reported as "finished" was chosen.

	B. M.R. Calculations	Water Dept. Charge	Amount Undercharged
Brick	\$76.30	\$77.00	\$70*
Concrete and Cement.	12.61	nil	12.61
Fireproofing42	nil	.42
Plastering	33.76	nil	33.76
	<hr/>	<hr/>	<hr/>
	\$123.09	\$77.00	\$46.09

In this instance the clerk endeavored to arrive at the amount to be charged by two methods:

Methods of
calculating
charges.

1. By calculating the cubical contents of the outer walls "solid," *i. e., not deducting any openings.*
2. By calculating the cubical contents of the outer walls "solid" *and deducting an estimated amount for openings,* and adding an estimated amount for plastering.

On sketch No. 6 a rough drawing was made of the floor plan, with an inscription above stating that it represented two six-story buildings 37 ft. by 84 ft. 7 in.; then an attempt was made to approximate the number of lineal feet in the outer walls thus:

2 x 74	148 feet
3 x 84	252 feet
To this is added	63 feet

giving a total for the outer walls of 463 feet.

This result is then multiplied by 70, which is assumed to be the approximate height of the building. This sum is then multiplied by 21 on the assumption that the walls are uniformly 12 in. thick. This gives a product of 680,610 bricks. To this is added presumably the brick for the basement, thus:

463 ft. multiplied by 10 by 6 equals..... 27,780

There is also added the product of 463 ft. multiplied by 10 by 14..... 64,820

giving a total of..... 773,210 bricks;
to which has been added for some unknown reason 23,320 bricks

giving a total of..... 796,530 bricks.
This figure is then brought to the upper right-hand corner of sketch No. 7, and..... 23,320 bricks deducted.

leaving a net of..... 773,210 bricks,
for which, apparently, it was the intention to charge \$77.00 plus \$5.00 for one boiler for one month.

The total of..... 796,530 bricks
is presumably the total number of bricks in the outer walls of the building if built solid.

Another calculation, however, was made by taking 773,210
as the estimated total number of bricks in the outer walls and deducting therefrom..... 164,560,
this latter figure being the estimated quantity of bricks as represented by the openings,
leaving a total of..... 607,650 bricks.

A crude attempt was then made to calculate the plastering separately by multiplying the lineal measurement of the outer walls, 463 ft., by the estimated height, 70 ft., giving a product of..... 32,410 sq. ft.
to this is added the sum of..... 14,400 sq. ft.

giving a total of..... 46,810 sq. ft.

which, divided by 9, reduces it to..... 5,200 sq. yds.

which, at the rate of 40 cents per 100 sq. yds., gives the sum of..... \$20.80
to which sum has been added 607,650 bricks at 10 cents per 1,000—6 cents disregarded 60.70

making a total of..... \$81.50

This method of calculation brought out two results. The first, reached after computing the total, walls solid, no openings deducted, was \$77.00. The second, reached after deducting the openings and adding an estimated amount for plastering, was \$81.50. In this particular instance the clerk, at his pleasure, issued the permit for \$77.00.

Sub-Division No. 4.

*Projected Buildings
and
Alterations.*

*Not Recorded
because
"Too Small."*

Projected Buildings:

Estimated cost of 51 buildings.....	\$53,950.00
Lowest estimated cost.....	\$300.00
Highest estimated cost.....	3,500.00
Average estimated cost.....	1,057.84

Projected Alterations:

Estimated cost of 561 alterations.....	\$1,223,961.50
Lowest estimated cost.....	\$25.00
Highest estimated cost.....	50,000.00
Average estimated cost.....	2,217.40

Considerable latitude is allowed to the clerks in deciding upon what particular projected buildings and alterations the city will make a charge for water consumed during the progress of con-

Latitude
allowed to
clerk as to
buildings to
be regis-
tered for
charges.

struction or alteration. The lowest estimated cost of an alteration observed for which no charge has been made, was \$25.00 (for erecting a sign), and the highest was \$50,000.00, for practically remodelling a building with new vent shafts, partitions, columns and electric elevators. The *Record and Guide* list is examined each week, item by item, and only such items registered for an ultimate charge as the clerk may decide upon. His decision is final and is rarely reviewed.

Investigation of the projected buildings (51) upon which no charge was made demonstrated that 65% of the properties (33) were metered. Of the remaining 35% (18 items) the lowest estimated cost of construction for a single projected building was \$400.00, and the highest \$3,500.00.

Investigation of the alterations disregarded by the clerk as being "too small" for a charge for water to be used during construction shows that many of the buildings were metered; therefore, such water as was consumed either during construction or for other purposes was presumably charged for in the ordinary course by the meter billing division.

Division B—Building Purposes Extras.

Little attempt was made to check the accuracy of charges for extras, *i. e.*, water consumed by boilers, pile drivers and hoisting engines for foundations, excavating, hoisting, etc., during construction, as practically no record of the quantity or capacity of the boilers or apparatus in use during construction is now available.

Additional Illustrations of the Abuses of this Branch.

Permit No. 33929.

Further
abuses
disclosed.

This permit (\$160.00) was filed in the Bureau of Buildings *after* the water charges had been paid. This would indicate that the owner or builder had either obtained the permit by verbal description to the clerk, or had exhibited to him plans other than those submitted to the Building Bureau. In this case a permit was obtained before notice was published in the *Record and Guide*.

Permit No. 33920.

This permit was issued during March, 1908, for \$190.00, to pay for the water to be used during the construction of a brick and stone six-story building on 105th Street. The plans for this

building were not filed in the Building Bureau as late as June, 1908. The method of arriving at the charge made for this permit is a good illustration of the latitude allowed the clerks. Either from verbal information or from plans which had not at that time been approved by the Bureau of Buildings, calculations were made by two different methods:

1. On the basis of the calculated cubical contents of the outside walls, *without deduction for openings*, a charge of \$100 was arrived at. To this was added an estimated charge of \$156 for plastering, producing the sum of \$256.
2. On the basis of the calculated cubical contents of the outside walls, *without deduction for openings*, a charge of \$76 was arrived at. To this was added an estimated charge of \$42 for plastering, producing the sum of \$118.

It is not clear that these two calculations were made at the same time, nor is it clear why the plastering is estimated in the first instance at \$156 and in the second at \$42. It is apparent, however, that the calculations were made by two different clerks, both of whom are either unwilling or unable to explain the calculations, or the reasons for the change of method. Nor does the clerk who issued the permit for \$190, after arriving at the sum of \$256 as a proper charge, offer any explanation for his action.

A description of the care exercised in one case examined during the investigation will serve to illustrate to what extent the revenues might be increased with a little care and effort on the part of the clerks in this branch to calculate the charge for each of the various materials to be used in the construction of the building.

Example of
more careful
calculation.

Permit No. 33930.

This permit, issued during the progress of the investigation, was selected for investigation for the reason that it was an unusually high-priced permit.

	B. M. R. Calculation	Water Dept. Charge	Amount Undercharged
Stone	\$48.94	\$40.00	\$8.94
Brick	181.32	141.76	39.56
Plastering	113.46	120.00	6.54*
Floors and Arches..	35.80	23.00	12.80
	<hr/>	<hr/>	<hr/>
	\$379.52	\$324.76	\$54.76

*Overcharge.

It will be observed that the difference between the amount charged and the amount which should have been charged is only 14%, and that an estimate of the quantity of material to be used has been obtained and utilized for the purpose of calculating the charge thereon, instead of adopting the usual practice of calculating the cubical contents of the walls "solid" and deducting or not deducting therefrom the estimated area of the openings, and charging the applicant some mean figure between the two.

Results of
Investigation
summarized.

Briefly summarizing the results of the investigation of the building purposes and taps branch, it may be said that the charges made for permits are very inaccurate. The clerks err generally in favor of the applicant, in many instances issuing the permit for a quarter or a third of its value. The basis of all calculations and the calculations themselves are lacking in definiteness and precision. The clerk in charge of this branch of the department, exercising uncontrolled discretion, may transact the business to the disadvantage of the city. That the revenue from this branch of the city government might, with proper attention, be doubled is, it is believed, a conservative estimate.

PART V.

THE ORGANIZATION AND METHODS PROPOSED FOR MEETING THE CONDITIONS NECESSARY ACCURATELY TO ESTABLISH WATER CHARGES.

The organization proposed for establishing charges and keeping accounts for consumers is as follows:

<i>Consumers' ledger branch</i>		15
Clerk in charge.....	1	
Ledger posting clerks.....	12	
Trial balance clerks.....	2	
<i>Meter setting and repairs</i>		9
Clerk in charge.....	1	
Permit, notice, violations and record clerks	8	
<i>Shipping branch</i>		4
Clerk in charge.....	1	
Permit clerks.....	3	
<i>Building purposes and taps branch</i>		2
Clerk in charge.....	1	
Permit clerk.....	1	
<i>Inspection branch</i>		2
Chief inspector.....	1	
Typist and listing clerk.....	1	
<i>Inspectors, measurers and skilled laborers assigned to</i>		97
Frontage rate branch measurements and inspections.....	10	
Meter readings.....	55	
Meter setting and repairs.....	16	
Shipping	4	
Building purposes and taps.....	2	
Assistant register and chief clerk's office	5	
Register	5	

Comparison of Old Plan with New.

By reference to the outline of the present organization it will be noted that the number of employees provided for in the present Reorganiza-
tion of
forces.

plan is the same as proposed for establishing charges and keeping consumers' accounts. The comparison by branches would be as follows:

<i>Name of Branch</i>	<i>Old Plan</i>	<i>New Plan</i>
Frontage rate.....	19	
Meter rate.....	24	
—	43	15
Meter setting branch.....	19	9
Shipping branch.....	4	4
Building purposes and taps branch.	2	2
Inspection branch.....	61	99
	<hr/> 129	<hr/> 129

Changes
under
proposed
plan.

From the comparison it will be noted that a reduction is proposed of 28 clerks in the consumers' accounts branches, and a transfer of ten inspectors from other branches to the chief inspector. Allowing the same number in total force, this would provide for a net increase of 28 inspectors.

To protect the city's revenue, it is absolutely necessary that there be an increase in the inspection staff sufficient to permit of meters being read not less frequently than once a month. It is also important that all of the inspectors of the department be subject to assignment, in order that no one class of inspectors may have a particular class of work or a particular territory permanently assigned to it. The character of the inspection work is such that any honest, energetic and ordinarily intelligent person can perform the service. The efficiency of the inspector will depend on his energy, honesty and mental alertness rather than upon any previous educational or technical training.

Responsibility
of chief
inspector.

Under the plan for reorganization as outlined, the chief inspector would be responsible for the accuracy of the inspectors assigned to each department, division or branch, and the inspectors would report as to time and number of inspections by classes to the chief inspector. All inspections would be made under orders from the head of the branch to which the inspector was assigned, the return on each inspection being made on the order itself. Thus the inspection or specific work of the inspector would be returned to the head of the branch for whom the inspection was made; and in case the inspection were not satisfactory, the chief inspector would be informed as to inefficiency and dereliction.

In assigning the orders for inspection the aim would be to have each reinspection made by a different person. The suggestion as to the number to be assigned to each branch is clearly tentative, the aim and purpose being to have enough inspectors assigned to each branch to do the work promptly and thoroughly, since the whole problem of establishing charges for water rates depends on returns made from the field.

Assignments
for
inspection.

Proposed Method and Procedure.

The administrative method and procedure proposed is one designed to meet the conditions above described, under which charges must be established, and accounts with consumers must be kept in order to bring them under control as to accuracy and insure the city the collection of its water revenues.

Frontage rate charges would be established and accounted for as follows: The information from which frontage rate charges would be established would be contained on a card record kept under the control of the general bookkeeper. On this card record would be entered all changes reported by inspectors and from the several branches affecting the frontage rate charge of each property. These cards would be written each year, would furnish a continuous history of each property to be charged, and would be kept in cabinets and filed by section, block and lot number. Prior to each billing period bills would be made from these cards by billing clerks, who also would be under the direction and control of the chief bookkeeper. As the bills are written, two schedules would be made on a billing machine with adding attachment, the entries on fifty bills being contained on each schedule. After being checked to the card record to prove their accuracy, each of these schedules would be journalized by the general bookkeeper, after which they would be turned over to the consumers' ledgers bookkeepers for posting in detail. The frontage rate ledgers would contain one account to each page, the charges to the accounts being gathered from the schedule above described. For convenience in posting, so far as practicable, the folios in each ledger would run in sequence of block and lot numbers. As bills are paid, the schedules of triplicates which are retained in the hands of the bill filing clerk, who is also under the direction and control of the chief bookkeeper, would be proved to the report of the cashier, arranged by

Frontage rate
charges.

book and folio, would be journalized by the general bookkeeper, and then turned over to the consumers' ledger clerks for posting in detail.

Meter rate charges.

The meter rate charges would be established as follows: Orders for meter readings would be made up on slips in much the same form as at present by the clerks in charge of consumers' accounts. These would be turned over to the clerk in charge of the consumers' branch, by whom they would be assorted in such order as to be conveniently read; after being assorted in lots of 100, each lot would be separately scheduled or listed, the clerk in charge indicating the inspector to whom each lot would be given for inspection and return. As returns were made by each inspector they would be checked off on the list prepared, in order to determine whether or not all of the orders for meter reading had returns made on them. These meter readings would be listed by book, folio and index number. On the schedule of meter readings would also be two blank columns, to be filled out by the consumers' ledger clerks.

After scheduling each day, the schedules in sequence book and folio reference would be turned over to the consumers' ledger clerks who would post the index reading shown on the schedules to the ledger, at the same time posting to the first blank column on the schedule the last previous reading; on the last blank column of the schedule would be extended the amount of water consumed, corresponding with the amount extended in the ledger account to which the posting was made. After the posting had been completed, these schedules would be returned to the general bookkeeper, who would go over the schedules by totals for each book, and the total amount of water charged to accounts within that book. By this method control would be established over the amount of metered water charges to be accounted for.

Meter rate billing.

Periodically and twice each year meter rate bills would be made up from the meter rate ledgers, to which the meter charges above described had been entered. These bills would be written by billing clerks in the same manner, and the schedules of bills would be used for purposes of control as above described in relation to frontage rate bills and schedules, the total of schedules of bills by ledgers being proved to the controlling total of charges shown on the meter journal. The amount of meter setting charges would also be carried in the same ledgers and the bills for meter charges controlled by schedule to the general bookkeeper, which

would be entered through a journal to the general ledger account.

The credits to the *meter rate* and *meter setting* accounts would be made and controlled as above described, in relation to the frontage rate accounts.

The meter defects and meter violations reported by the various inspectors under the direction of the clerk in charge of the consumers' ledgers branch, to which administrative attention would be required, would be scheduled as they came in from the meter reading and inspection water returns and sent to the chief clerk, who would be responsible for the institution of the measures necessary to their immediate correction.

Meter defects
and
violations.

In cases of leaks and waste, notice would go to the Engineering Bureau. In cases of meters out of repair, orders would be sent to the meter setting and repair branch. Violations would be referred to inspectors under the chief clerk or under the immediate direction of the Water Register. Notice of the illegal use of water would be referred to inspectors under the chief clerk or to the Water Register.

In the shipping branch would be kept all of the meter ledgers containing metered shipping properties. The clerks keeping these ledgers would be under the direction and control of the clerk in charge of the consumers' ledger branch, although the books would be kept in the office of the clerk in charge of the shipping branch for his information. These ledgers would be handled in the same manner as above described. For purposes of perfect control, balances would be taken off of all of the consumers' ledgers by means of listing and adding machines, on columnar ruled sheets so lined that the full trial balance of a ledger might be contained on a single sheet. These balances would be immediately proved to the controlling balance of the general bookkeeper. In case any discrepancy appeared as between the total of the balances shown on the trial balance sheet and the total of the balance shown in the controlling account of the general bookkeeper, the trial balance would be referred back by the general bookkeeper to the consumers' ledger clerk in charge of the ledger which is out of balance.

Metered
shipping
properties.

In order to take off a balance on each ledger each month, it is estimated that it will require the continuous service of two listing clerks to perform the mechanical part of the trial balance work. By making proof each month, however, the department will have the advantage of knowing at all times that the accounts are correct, and will be able to prove out and close subsidiary books and render their branch reports within a few days after each closing period.

Advantages of
taking
monthly
balance.

PART VI.

THE COLLECTION OF CHARGES RECEIVABLE AND MAKING RETURN OF RECEIPTS.

Lack of
accounting
control in
cashier's
office.

At the present time the cashier's office is organized on the theory that it is to operate independently of all other offices and branches of the department. The cashier is appointed by the commissioner as his personal representative, being exempt from competitive examination under the civil service rules. No accounting control is established over the cashier other than that provided by the organization of his own office. The accounts receivable by the department are not provable and may not be used for the purpose of determining whether the amounts collected and returned in arrears are equal to the total amount of revenue accrue-ments for other periods. The Chamberlain receives credit for the amounts deposited each day in the authorized depository, but the Comptroller has no means of determining whether or not the statement of collections supporting the receipt voucher is a true statement of the amounts which should have been collected on the bills reported as having been paid.

Loss of
revenue from
errors.

Without attempting to check the collections to the ledgers in which accounts receivable are carried, several errors and omissions have been detected, which indicate that in this manner the city loses much revenue. An instance of this is found in the account of the — company, which has contracted to pay the city at the rate of \$1,333.33 per month for sprinkling privilege. In going over the account for the year 1907, it was found that only eleven payments appeared on the ledger. This having been brought to the attention of the chief clerk, upon inquiry it was found that the payment for July, amounting to \$1,333.33, had not been made, and the company claimed never to have received a bill therefor. A check for the amount immediately followed.

During the last year a number of examples of payments being checked against the ledger which were not supported by the cash book were discovered, as a result of which one of the clerks of the bureau was dismissed.

Responsibility
for
corruption.

To hold out to employees of an institution such an opportunity to profit by collusion, or to place before them a continuing inducement to betray their trust is a neglect of which a great municipality should not be guilty. When under such circum-

stances a poorly paid employee "goes wrong," there is quite as much moral responsibility attached to those who are cognizant of the method of doing business as to him who succumbs to temptation.

Present Organization.

The office of the cashier is arranged in such manner as to make it difficult for collusion to exist inside the office without a number of persons being implicated. At the head of the office is the cashier. Under him is a financial clerk who acts as the assistant cashier and represents him in his absence. In the building purposes and taps branch is also a financial clerk who represents the cashier there and makes returns to him. The other employees of the cashier's branch are a cash entry clerk, classified cash book clerk, a clerk making up daily reports for the Comptroller, and the statement clerk. When bills are paid the bill itself is stamped and receipted, and the coupon is detached and placed on his file. Before the bill is handed to the payer, however, it is passed through the window from the cashier's cage to the financial clerk on his left, who makes entry of the amount in a cash book, no record of the cash received being kept by the cashier. After entry in the cash book by the financial clerk the receipted bill is again passed to the general cash entry clerk who enters the amount on the general cash entry book. At the end of the day the cash on hand must agree with the amount recorded on the cash book and the general cash entry book. The classified cash book is kept at the right of the cashier, entries to this being made from the coupons detached at the time of payment.

Protection
against
collusion
within
cashier's
office.

The organization and mechanism employed for the purpose of protecting the department from collusion within the cashier's office, therefore, would seem to be adequate. There is little or no protection, however, against collusion between the consumer and the ledger clerks to whom the consumer goes for his bill before it is presented for payment to the cashier. The assumption seems to be that by multiplying the checks on the cashier the city is completely protected.

Lack of
protection
against
collusion with
ledger
clerks.

At the present time moneys are received by the Engineering Bureau, the building purposes and taps branch and the cashier. The financial clerk in the building purposes and taps branch keeps five cash books, as follows:

Records of
moneys
received.

1. Cash record of building purposes receipts.

2. Cash record of building purposes extras receipts.
3. Cash book of receipts for taps permits.
4. Cash book for collection of bills for labor and materials.
5. Cash book for the collection of meter setting bills.

These receipts are reported weekly. Receipts for building purposes, building purposes extras and fire hydrants are turned over to the cashier with the report at the end of each week. The receipts for taps permits, for sales of materials and the use of departmental labor for meters and meter setting are deposited by the clerk personally to the credit of the Chamberlain, the receipts for meters and meter settings being deposited to the credit of water meter fund No. 2. The receipts from the Engineering Bureau are turned in to the Water Register's office instead of going to the cashier.

Proposed Organization.

Collection of
moneys under
proposed
plan.

By the plan of organization proposed, it is suggested that all moneys to be collected in the Department of Water Supply, Gas and Electricity shall be collected by the cashier at his office. The plan proposed also contemplates that all accounts receivable shall be subject to proof, and that the accounts of those branches charged with accounts receivable shall be used for the purpose of checking and proving the accuracy of returns made by the cashier. By such centralization of collections and such method of control, the present plan of the cashier's office will be rendered unnecessary.

The procedure suggested would be as follows: Upon application of the payer the bill filing clerk would pass to the cashier the original and duplicate of the bill, retaining the triplicate for his own files, as described on page 23. At times when consumers are present in such number that a line would be formed, the payers would be required first to pass the window at which the assistant cashier would be stationed, who, having received the duplicate and triplicate of bills from the cashier, would arrange them in the same order as the payers in the line approaching the cashier's window. Thus the cashier would be able to handle the bills very rapidly, counting the money, receipting and detaching the original, and laying the duplicate in a basket for the use of the listing clerk.

In the same cage would be a typist and listing clerk who would list the names of the payers and the amounts on a type-writing machine with adding attachments, each class of bills paid being separately listed. From these mechanically added lists the

daily report of the cashier would be made up, the total of the list being proved to the cash on hand. The report as thus prepared would be sent to the general bookkeeper, who would check the amount to the lists of triplicates prepared in the office of the bill filing clerk, which in turn would be used for purposes of control over consumers' accounts.

The advantages of the organization and procedure proposed would be:

1. Delay would be avoided in obtaining the bill on which payment is to be made, the bills being previously prepared and filed with the bill filing clerk.
2. Control would be obtained over charges in the consumers' ledger through the independent billing process.
3. Independent control would be obtained over the cashier's office without the complicated method of checking as at present used, because the bills would be prepared in triplicate and the bill filing clerk would be held responsible for return.
4. The general bookkeeper would also obtain an independent basis for control over the credits to be entered to the consumers' accounts because an independent basis for charge against the cashier would be established.

EXHIBIT A.

POWERS AND DUTIES OF THE PERSONNEL OF THE PRESENT ORGANIZATION.

Recapitulation by Branches.

1. Register	2
2. Chief clerk.....	9
3. Building purposes and taps.....	2
4. Frontage rate.....	19
5. Meter billing.....	24
6. Meter setting.....	19
7. Shipping	4
8. Inspection	61
9. Cashier	6
<hr/>	
Total	146

Recapitulation by Classes.

Register	1
Cashier	1
Financial clerks.....	2
Clerks	60
Inspectors	53
Temporary inspectors.....	7
Measurers	4
Stenographers	4
Assistant foremen.....	4
Laborers	5
Skilled laborers.....	2
Crew of water boat.....	3
<hr/>	
Total	146

Recapitulation by Branches and Classes.

1. Register's office.....	2
Register	1
Clerk acting as secretary.....	1

2. Chief clerk's office.....	9
Clerk in charge.....	1
Clerks	4
Stenographers and typewriters.....	4
3. Building Purposes and Taps Branch.....	2
Clerk in charge.....	1
Clerk	1
4. Frontage Rate Branch.....	19
Clerk in charge.....	1
Clerks	12
Measurers	4
Skilled laborers.....	2
5. Meter Rate Branch.....	24
Clerk in charge.....	1
Clerks	23
6. Meter Setting Branch.....	19
Clerk in charge.....	1
Clerks	9
Laborers	5
Assistant foremen.....	4
7. Shipping Branch.....	4
Clerk in charge.....	1
Water patrol boat crew.....	3
8. Inspection Branch.....	61
General inspectors.....	1
Acting general inspector.....	1
Assistant general inspector.....	1
Inspectors	50
Temporary inspectors.....	7
Clerk	1
9. Collection (Cashier's) Branch.....	6
Cashier	1
Financial clerks.....	2
Clerks	3

EXHIBIT B—I.

DESCRIPTION OF PRESENT RECORDS AND PROCEDURE IN THE OFFICE OF WATER REGISTER.

As administrative head of the Bureau of Water Register, the Water Register has general supervision and control over all activities of this division of the service. In performance of such duties:

1. He attends to the correspondence requiring official attention.
2. He receives reports from the chief clerk, cashier, financial clerk of the building purposes and taps branch, general inspector, and the several other branch heads.
3. He holds hearings on complaints against licensed plumbers, persons charged with the illegal use of water, consumers asking for the reduction of charges, and on protests of consumers against meter setting and against the city plumber's bills, etc.
4. He makes quarterly and annual reports to the commissioner on the operation of his office.

The procedure and records used in handling the business of the office are as follows:

Correspondence.

All correspondence requiring the direct exercise of official discretion not handled by the chief clerk is handled in this office, the files being under the direct charge of the Water Register's secretary.

Reports from Branch Heads.

In order that the Water Register may keep in touch with the work of the several branches or divisions of the bureau, the following described reports are received:

1. *Daily Report of Collections Received from the Cashier:*

Reports are made at the close of each business day to the register by the cashier. These reports show principal amount and penalties in two separate items. The principal amount includes:

Frontage rate collections
Meter rate collections

Shipping collections
Building purposes collections
Building purposes extras collections

2. *Daily Report of Financial Clerk Received from Building Purposes and Taps Branch:*

Report is made each day by the financial clerk stationed in the building purposes and taps branch. This report shows collections for:

Building purposes
Building purposes extras
Taps
Materials and labor furnished
Meter setting collections

This same report is recapitulated and also rendered weekly and monthly. The financial clerk and the cashier both include in their daily reports receipts from building purposes and building purposes extras. The actual collections being made by the cashier, his data comes from cash received. The financial clerk issuing the permits carries the amounts of permits issued as memoranda, from which is gathered the data for his report to the Register. For taps, material and labor and meter setting, no account being made to the cashier, there is no basis for reports for checking the report of the financial clerk.

3. *Weekly Report Received from General Inspector:*

A report from the general inspector is made up weekly, showing assignments, duties, etc., of each member of the staff of inspectors.

4. *Time Reports:*

No time records are kept. In lieu thereof, daily memoranda and personal statements as to time lost are made by each of the several branch heads direct to the Register. There is no regular record maintained or kept of these reports, but if, in the discretion of the Register, the reported absence is considered inexcusable, the chief clerk is directed to deduct the proper amounts from the payroll.

Hearings.

A considerable portion of the time of the Water Register is taken up with hearings of the various classes above described. Although this is a very important part of the work of administration, and is a means whereby the Register is able to keep in direct touch with the water user who has a complaint against the administration and with the persons employed either by the consumer or the department in setting meters, etc., no minutes are kept of such hearings and no formal record is preserved in the department.

All important letters, vouchers, requisitions and applications for reductions, refunds or cancellations of amounts collected and reported to the Comptroller require the signature of the Water Register, subject to the final approval of the Commissioner.

Quarterly and Annual Reports Made by the Water Register To the Commissioner.

Reports are rendered by the Register quarterly and annually, and show :

- Collections for water classified
- Amounts returned in arrears
- Approximate number of meters set and in use, etc.

The data for these reports are gathered from the records of the several branches, compiled in the office of the chief clerk.

EXHIBIT B—II.

DESCRIPTION OF THE PRESENT RECORDS AND PROCEDURE IN THE OFFICE OF THE CHIEF CLERK.

The chief clerk stands in much the same relation to the Water Register as an assistant, and is responsible:

1. For the handling of the mail not handled directly by the Register.
2. For the handling of complaints and the registration of important complaints which are not reserved for the exclusive attention of the Water Register.
3. For the preparation of requests and the referring of requests to the Comptroller for refunds, reductions and cancellations.
4. For the preparation of payrolls.
5. For the making of requisitions for printing, stationery and supplies.

The procedure and records used in handling this business are as follows:

Handling of the Mail.

Ordinary and routine matters received through the mail, such as requests for duplicate bills, are sent by the mail clerk direct to the branch heads for their attention without any formal record being made. Matters which are extraordinary in nature and of special importance, however, are recorded in a mail register before being distributed and a record made of the final disposition and date.

The Registration and Distribution of Complaints.

Complaints come in by mail or are made in the form of signed memoranda. These are registered chronologically. The register is a columnar ruled book with the following headings:

File number
Name
Residence
Premises
Nature
Received
Date
By

Inspector
Return
Description
Remarks

In the remarks column is placed the date the letter of complaint was answered, or other miscellaneous references. After registration the complaints are sent to branch heads or others for attention. A complaint jacket is also made up on a jacket form which shows:

Number
Premises
Cancel—Refund
Received—190
Referred
Returned—190
Answered—190
Comptroller—190
Filed—190

Requests to the Comptroller for Refunds, Reductions and Cancellations.

Refunds, reductions and cancellations arise from complaints. If complaints are first made to the frontage rate or meter rate branches, forms are prepared. If coming first to the chief clerk by mail, they are referred to these branches. Having been investigated by the frontage rate or meter rate branches, they are sent to the chief clerk, where they are registered. The register is columnar ruled, the headings showing:

Affidavit No.
Section
Block
Lot No.
Premises
Year
Water
Amount
Letter Book and Folio
Date
Signature

After registration, a request is made to the Comptroller which carries with it the approval of the Register and of the Commissioner. These approvals are taken by the Comptroller as authority for approval of vouchers issued for payment.

Preparation of Payrolls.

Monthly payrolls for the bureau are prepared in this office on the 20th of the current month as of the end of the month. In case of unauthorized lost time between that date and the end of the month for which deduction is to be made, the amount will be taken from the following month's payroll. In case of death or discharge before the end of the payroll period, the payroll will have to be recalled and corrected. The usual department payroll, approved by both the Register and the Commissioner of Water Supply, Gas and Electricity, is used.

Requisitions for Supplies, Stationery, Printing, etc.

Requisitions for the purchases of supplies, stationery and printing originate in this office upon the request of branch heads after verbal approval by the Register. These requisitions are formally approved by the Register after being prepared. The form of record of requisitions, kept in the office of the chief clerk, is a file of the duplicates recently installed by the Department of Finance.

EXHIBIT B—III.

DESCRIPTION OF THE PRESENT RECORDS AND PROCEDURE IN THE BUILDING PURPOSES AND TAPS BRANCH.

In this branch two classes of water revenues are accrued and reported, and three other classes of revenue are collected :

1. Revenues accrued and reported :
 - a. Revenues for the use of water for building purposes.
 - b. Revenues for the use of water for building purposes extras.
2. Revenues recorded and collected :
 - a. Collections of revenues from the issue of permits for taps.
 - b. Collections of bills for labor and material used in changing the location and grades of mains and gates, locating and stopping leaks and other purposes.
 - c. Collections of bills for the cost of setting meters by the city plumber.

Of these sources of revenue, the charges for the first three originate in the building purposes and taps branch; charges for labor and materials used originate in the Engineering Bureau; charges for meter setting originate in the meter setting branch of the Bureau of Water Register. The financial clerk of the building purposes and taps branch carries a cash record for each source of revenue, but is responsible for collections of bills for the last three classes of charges only, charges for building purposes and building purposes extras being collected by the cashier.

Charges for Building Purposes.

1. *The building purposes register* is the principal record in which this class of accruals is recorded. This register is columnar ruled, the captions of the several columns being as follows :

Number
Location
Name and address of owner
Name and address of builder
Number and height of building
Size
Date plans filed
Blank column
Remarks

The number is entered from the filing number given to the building purposes permit. The location, name of owner and name of builder are entered from the *Record and Guide*. The owner's address, the builder's address, number and height of building, size and date of plans filed, are entered at the time of issuing the permit from information furnished by the owner or builder when applying in person or by agent for the permit.

2. *Inspection and report books* are kept by the inspectors for the purpose of recording the date and the fact of notification to owner and builder to call and pay for water used for building purposes. This book is ruled in columns to show the following:

Street number
Building
Owner
Date notified
Builder
Date notified
Remarks

This memorandum is not made nor this form used when the owner or builder makes personal application for permit prior to the publication of the plans in the *Record and Guide*.

3. *Notices to pay* for water are made out by the inspector, the purport of the notice being to request the builder to call at the building purposes branch office to obtain a permit and pay for water to be used in the process of construction of a contemplated building, under penalty of having his water shut off without further notice. The date of delivery of such notice is entered in the inspection and report book above described. This form of notice is only used in the case of taps being utilized which are already in service, as it is hardly possible under the regulations of the department to get water through a new tap without first having obtained a permit for such purpose.

4. *Permits* for the use of water, unsigned, are handed to the builder at the time he calls at the building purposes and taps branch. These permits contain an estimated amount based on the character of buildings, the charges being according to the rates established by ordinance as follows:

Building purposes—ten cents per 1,000 brick.

All masonry at the same rate, 500 brick being equal to one cubic yard.

Plastering—forty cents per 100 sq. yds., openings not included.

Permits are issued to the owner or builder upon presentation of building plans approved by the Bureau of Buildings, the charge being calculated by the clerk issuing the permit. The permits are issued on forms which are bound in a book, the permit being detached from the stub which remains in the book for checking purposes.

5. *A coupon accompanying the permit* is also filled out at the same time as is the permit, the coupon being on a different colored paper. Both the permit and the coupon are presented to the cashier at the time of payment. The cashier upon receiving payment signs the permit, thus validating it, and returns it to the builder for his authority and receipt. The coupon is retained by the cashier till the following day, when it is returned to the building purposes branch for check against the stub in the permit book.

Charges for Building Purposes Extras.

6. *A building purposes extras register* is kept for the purpose of recording charges of this class. The register in use is ruled and printed for recording tap permits issued, and has six columns which are used for the following purposes:

Register number
Date
Location
Style and size of boiler, etc.
Blank
Remarks

7. *An application for extras* is made as an initial proceeding before charges are entered. The form of application shows:

Location
Horse power of boiler
For what purpose
Where to be used
How
Charges
Approval

The applications for extras include charges for water to be used for outside boilers, temporary boilers, fire hydrants, mixing concrete, etc.

8. *Permits for extras* are issued upon approval of these applications. The form of permit shows:

Name
Amount received
Purpose for which water is to be supplied

9. *Permits to use fire hydrants* are also issued by the building purposes and taps branch. These permits are issued to persons desiring to use water where the mains may not be readily tapped, or in cases where water is not readily available. The permits for the use of fire hydrants are supplementary to the permits for building purposes and building purposes extras, it being necessary to pay the charges on permits for building purposes and building purposes extras before the permit for the use of fire hydrants will issue. The charge for the permit for the use of fire hydrants is to cover the cost of inspection of water used from fire hydrants, the inspector being named or nominated by the Water Register, the user agreeing to pay for the inspector's services at a stipulated rate per day. The form of permit shows:

Date
Name of person to whom permit is issued
Number and location of fire hydrant
Number of days
Between what hours water may be used

10. *A coupon accompanying each permit* is made out at the time the permit is written, the coupon and permit being handled in the same manner as described above in relation to coupons accompanying permits for building purposes.

Charges for Taps.

11. *A taps register* is used for the purpose of recording charges for the making of taps. This register is columnar ruled, the several columns having captions as follows:

Tap permit number
Date
Location
Size of tap
Location of tap
Connection permit number

12. *Application for tapping Croton water pipes* is made when water is required for building purposes or building purposes

extras, and no convenient tap is available. Such application is necessary, as a permit must be obtained before connection may be made with the water main. If an old source of supply exists which is adequate for the purpose, application is not necessary until after the building is completed, and not then, unless the service from which water is obtained in the building operations would be inadequate to supply the premises. Application must be made by a licensed plumber and signed both by the licensed plumber making the application and the owner or his agent. The form used shows:

Register number
Size of tap
Location of premises
Size of building
Stories
Feet front
Feet deep
Character of occupation
Signed

13. A *tap permit* is issued upon approval of the foregoing described application. The form shows:

Name of licensed plumber paying for the permit
Amount
Size of tap
Number and location of premises
Date

It is signed by the financial clerk stationed in this branch.

14. *Authorization to tap water mains* is given to the engineer, as only the official departmental tappers and their assistants are permitted to tap the water mains. After the permit has been received, the Engineer's Bureau issues authority to the tapper in the name of the chief engineer, reading as follows:

Date
Size of tap
Number and location of premises
Name of licensed plumber
Space for signature of an assistant engineer

15. *Application to open street to repair service pipes* is made when it is desired to open streets for this purpose. Upon approval of this branch it is carried by a licensed plumber to the Bureau of Highways of the Department of Public Works. The application

shows the number and location of the premises, and is signed by both the owner and the licensed plumber. The purpose of the application is to give notice to and obtain approval from the Water Department of work to be done in another department.

Records of Collections Kept by the Financial Clerk.

16. *The cash record, receipts for use of water for building purposes* is kept by the financial clerk stationed in this branch. The record is for the purpose of furnishing to the Water Register on his weekly report a statement of the amount of permits of this class issued, as the money received therefor is turned over to the cashier. The form of the record is an ordinary single entry cash book.

17. *The cash record, receipts for extras and fire hydrants* is in the same form and handled in the same way as is the cash record of receipts for use of water for building purposes.

18. *The cash book, receipts for tap permits* is a record of receipts for tap permits issued, kept by the financial clerk stationed in this branch. The moneys received are held by him personally for deposit once a week. An ordinary stock cash book is used.

19. *The cash book, receipts for sale of material and use of departmental labor* is a record of receipts for materials sold and departmental labor used. This cash is in the same form and is handled in the same manner as that received from taps, *i. e.*, held by the financial clerk personally and deposited once a week.

20. *The cash book, receipts for meters and meter settings* is a record of receipts for meters sold and for material and labor used by the city plumber, paid for by the city, and credited to water meter fund No. 2. The moneys so collected go to the same fund and are available for the purchase of additional meters and for the payment of city plumbers' bills. These receipts are handled in the same manner as are those for taps and material and labor, *i. e.*, held by the financial clerk personally and deposited once a week. The headings of the cash book show the following:

Date
Register number
Name
Premises
Amount
Total amount

21. *A weekly report to the Water Register of miscellaneous water receipts* is made by the financial clerk stationed in this branch once each week. Its caption "Croton water receipts" is a misnomer; it should be "miscellaneous water receipts." The form shows the following headings:

Date
Building purposes permits
Extras permits
Taps permits
Work done
Materials furnished the chief engineer

In the latter column is also shown receipts from sale of meters and meter setting. The collections for permits for building purposes and building purposes extras are made by and under the control of the cashier; the others, as explained in Numbers 17, 18 and 19, are collected and accounted for by the financial clerk stationed in this branch.

22. *A weekly report to the City Comptroller of receipts from taps permits* is furnished each week. The headings on the form show:

Date
Register number
Name
Location of premises
Amount

This form is prepared by the financial clerk.

23. *A weekly report to the City Chamberlain of receipts for materials sold and departmental labor furnished* is made up in the same way as the preceding. The form reads as follows:

Date
Name
Location
Amount

24. *A weekly report to the City Chamberlain of receipts for sale of meters and meter setting* is also furnished, but there is no form in the bureau for this report, an ordinary letter being used therefor.

25. *A City Chamberlain's receipt voucher of amounts received for taps* is furnished by the City Chamberlain each week, upon receipt by him of a certified deposit slip. The receipt is in

voucher form, at the top showing a certificate from the Water Register of the amount, and at the bottom the Chamberlain's acknowledgment that amount has been placed in bank to his credit

26. *A City Chamberlain's receipt of amounts received for meters sold and meter setting* is rendered in the same manner and form as the foregoing.

27. *A City Chamberlain's receipt of amounts received for sale of material and use of departmental labor* is also furnished by the City Chamberlain in a bound book of ordinary receipt forms.

EXHIBIT B—IV.

DESCRIPTION OF THE PRESENT RECORDS AND PROCEDURE OF THE FRONTAGE RATE BRANCH.

The principal records of this branch are consumers' ledgers, which contain an account with each piece of water-using property, whether on a frontage rate basis or metered, metered records being carried for memorandum purposes only. These books are rewritten each year. "Frontage rates," also called "building rates," mean charges to consumers for unmetered water. The amounts of charges therefor are regulated by an ordinance which establishes a scale of water rents for the City of New York, pursuant to Section 473 of the Charter of Greater New York. The minimum annual rates so established and special charges on frontage rates to be collected by the department are as follows:

Front Width	1 Story	2 Stories	3 Stories	4 Stories	5 Stories
16 feet and under..	\$4.00	\$5.00	\$6.00	\$7.00	\$8.00
16 to 18 feet.....	5.00	6.00	7.00	8.00	9.00
18 to 20 feet.....	6.00	7.00	8.00	9.00	10.00
20 to 22½ feet....	7.00	8.00	9.00	10.00	11.00
22½ to 25 feet....	8.00	9.00	10.00	11.00	12.00
25 to 30 feet.....	10.00	11.00	12.00	13.00	14.00
30 to 37½ feet....	12.00	13.00	14.00	15.00	16.00
37½ to 50 feet....	14.00	15.00	16.00	17.00	18.00

Baths—All private baths three dollars per annum.

Waterclosets and urinals of every description, two dollars per annum. One watercloset and one bath in each house supplied free of charge.

In addition to the above, there are what is known as extra and miscellaneous rates. These rates as printed on the back of water rate bills are as follows:

Bakeries—Three dollars per annum.

Barber Shops shall be charged from five dollars per annum, and additional charge of five dollars per annum shall be made for each bathtub therein.

Bathing Tubs in private houses, beyond one, shall be charged at three dollars per annum each, and five dollars per annum each in public houses, boarding houses and bathing establishments. Combination stationary washtubs, having a movable division in the center and capable of use for bathing, shall be charged the same as bathing tubs.

Dining Saloons shall be charged an annual rate of from five dollars.

Fish Stands (retail) shall be charged five dollars per annum each.

Stalls—For each stall, one dollar per annum.

Horse Troughs—For each trough, and for each half barrel or tub on sidewalk or street, twenty dollars per annum, each trough to be fitted with a proper ball-cock to prevent waste.

Hotels and Boarding Houses shall, in addition to the regular rate for private families, be charged for each lodging room, at the discretion of the commissioner of water supply, gas and electricity.

Laundries shall be charged from eight dollars per annum.

Liquor and Lager Beer Saloons shall be charged an annual rate of ten dollars each. An additional charge of five dollars per annum shall be made for each tap or wash box.

Photographic Galleries shall be charged an annual rate of from five dollars.

Steam Engines, where not metered, shall be charged by the horse power, as follows: For each horse power up to and not exceeding ten, the sum of ten dollars per annum; for each exceeding ten, and not over fifteen, the sum of seven dollars and fifty cents each, and for each horse power over fifteen, the sum of five dollars.

Soda, Mineral Water and Root Beer Fountains shall be charged five dollars per annum each.

Baptistries shall be charged at the rate of ten dollars per annum.

Florists shall be charged at the rate of five and ten dollars per annum.

Milk Depots (for the purpose of washing cans) shall be charged seven dollars and fifty cents per annum.

Bottling Establishments shall be charged ten dollars each per annum.

The regular frontage rates are based on the assumption that but one family is to occupy each property rated. In case more than one family may occupy property which is charged on a frontage rate basis, an additional rate is made of \$1 per year per additional family.

Supporting the charges and corrections in the consumers' ledgers kept in this branch are:

- Files of the *Record and Guide*
- Tax maps
- Measurers' field books
- Measurers' reports on completion or demolition of buildings
- Reports of inspectors on alterations of buildings and complaints against buildings

Entries showing payments are supported by the cash books in the office of the cashier, which in turn are supported by the receipted bill stubs detached by the cashier at the time payments are made.

The following forms are also used in the frontage rate branch, viz.:

- Frontage rate bill and stub
- First notice of penalty
- Second notice of penalty
- Return to the receiver of taxes of frontage rate water bills in arrears
- Requisitions for Croton water bills

Consumers' Ledgers (Called Frontage Rate Ledgers).

The frontage rate ledgers are classified according to sections and blocks, the section and block numbers included in each book appearing at the top of the pages. Each volume has its number and in its caption shows the streets and avenues by which the territory included is bounded. The separate accounts with water-using properties are carried on the horizontal lines, the detailed information being distributed to columns. Postings to these records are made from the *Record and Guide*, inspectors' and measurers' reports and other supporting records and documents described. The detailed captions of columns are as follows:

- Size of lot
- Lot number
- Location of property
- Name of owner or tenant
- Stories high
- Front width
- Front building
- Rear building
- Water closets
- Baths

Extra families
Meters
Bars
Wash boxes
Stalls
Saloons
Laundries
Barbers
Bakeries
Soda fountains
Steam engines
Unpaid Croton (balance from previous year)
Remarks
Deduction
Increase
Principal
Penalty
When paid

Supporting Documents and Files.

1. The *Record and Guide* is a real estate publication from which the ledger accounts are opened in this bureau, the information derived from this source being the descriptive data carried in the first eight columns shown above.

2. The *measurers' field book* carries a list of buildings in course of construction or demolition. It serves as information to the measurers of properties on which they are to report. This book is a blank memorandum book, in which are recorded the date on which the Bureau of Buildings issued the permit and the location of the premises. After the measurer visits the premises, he also makes a note of the probable date of completion; upon completion he enters the actual date, at which time he turns in to the frontage rate branch a formal report on the form described below. The bureau has no way of finding out whether all building operations are finally reported on at completion except by a check against the record contained in the *Record and Guide*; unless it be from the report of the Tenement House Department, which furnishes this branch with a list of all permits for occupancy of completed buildings coming under its jurisdiction.

3. A *report on completion or demolition of buildings* is made by the measurer. When the construction or demolition of a building is completed, each measurer turns in to the chief measurer a report on each property, showing:

Date
Block location
Number of buildings
Commencing date
Street number
Stories high
Frontage feet
Closets
Baths
Families
Bars
Wash boxes
Stalls
Dining saloons
Laundries
Barbers
Bakers
Soda fountains
Steam engines

A diagram is also carried on each report in which may be indicated the four streets bounding a block and in which the measurer may outline in proportion the form and size of the building and its distance from any one of the four street lines. At the bottom of the form is space for remarks and signature of the measurer. The reverse side is used for filing, and shows:

Number
Date
Name of measurer
Description of the property examined

After approval by the chief measurer, this form serves as a basis for entry in the frontage rate ledger in the columns corresponding to those shown above.

4. *Reports of inspectors on alterations of buildings and complaints against buildings* are made, information for which is taken from the *Record and Guide* and entered on a form known also as "inspection report." Complaints made by consumers are handled in the same way. These forms are turned over to inspectors, who make their returns thereon. The form provides for the following information:

Date
Section block
Number and location of premises
Front house—stories high
Rear house—stories high
Families

- Baths—private
- Bars
- Wash boxes
- Dining saloons
- Fish stands
- Photograph galleries
- Florists
- Bottling
- Stalls
- Horses' troughs
- Half barrels.
- Steam engines

The inspector certifies on each report that the premises have been examined. The reverse side of the form shows the location by floors, yard, cellar, etc., of the various fixtures above mentioned. It is from these reports that entries are made in the ledger accounts in columns headed "deduction" and "increase."

5. *Entries of payments* in the ledger accounts under the caption "when paid" are made by stamp, the information being taken from the cash books subsequently checked by the receipted bill stubs.

6. *Frontage rate bills* are made out in printed forms with coupons attached, the bill and the coupon bearing the imprint of the year for which the frontage rate charge is billed. On the head of the bill are printed the conditions of payment and penalties. The bill form is columnar ruled, the columns showing:

- Volume
- Folio
- Block number
- Lot number
- Location of premises
- Charges
 - Front building
 - Rear building
 - Water closets and urinals
 - Baths
 - Extra families
 - Bars
 - Wash boxes
 - Stalls
 - Dining saloons
 - Laundries
 - Barber shops
 - Bakeries
 - Soda fountains
 - Steam engines
- Amount

The coupon attached shows:

Date
Section
Volume
Clerk
Payor
Block
Lot
Location
Amount
Penalty
Total

The frontage rate bill is printed in different colored ink each year, so as to be distinguished from the other bills of the department and the bills of other years in this branch. On the reverse side of this bill is printed the rates of the department for all classes of water uses, together with copies of ordinance relating to the use of water and the rules of the department.

7. *First notices of penalty* are on postal cards, sent shortly before August 1st of each year to consumers who have not paid current year's bill, reminding them that 5% penalty will attach to their accounts, if not paid by August 1st.

8. *Second notices of penalty* are sent on postal cards shortly before November 1st, to water consumers whose accounts for the current year are not paid, notifying them that a penalty of 15% will attach to their accounts if not paid on that date (first penalty, 5%; second, 10%; final, 15%).

9. *Returns of frontage rate water bills* in arrears to the Receiver of Taxes are made on August 1st of the following year in which charges are made. These returns of unpaid amounts are first made to the Receiver of Taxes, who subsequently returns the items still uncollected to the Bureau of Assessment and Arrears of the Department of Finance. The form of return shows:

Section
Volume
Year
On what street
Side
Between what streets
To whom assessed
Block number

Lot or ward and map number
Total amount of water rent
Remarks

10. *A form of requisition for Croton water bills* is provided for the use of property owners or agents on which request is made to the bureau for water bills, and which shows to whom the bills are to be sent and their address, as well as section, volume, block, lot, street or avenue, and remarks.

EXHIBIT B—V.

DESCRIPTION OF THE PRESENT RECORDS AND PROCEDURE IN THE METER RATE BRANCH.

By ordinance, adopted March 15, 1900, signed by the Mayor April 10, 1900, it is provided that "water meters shall be placed, at the discretion of the Commissioner of Water Supply, for all stores, workshops, hotels, manufactories, office buildings, public edifices, on wharves, ferry houses, and in all places where water is furnished for business consumption, except private dwellings; the charge for water measured by meter to be ten cents per 100 cu. ft. All charges not herein mentioned or fixed are reserved for special contract by and with the Commissioner of Water Supply, Gas and Electricity." Pursuant to this authority, meters have been installed and a meter rate branch established in the Bureau of Water Register.

The principal records of this branch consist of ledgers on which are carried accounts with all users of metered water. As explained in Exhibit B.—IV., a memorandum reference to these accounts is also carried in the frontage rate ledgers. Determination as to whether new property is to be charged on a frontage rate or meter rate basis is made to depend on reports of measurers. Premises already using water are changed from frontage to meter and from meter to frontage rates on reports made by inspectors. The reports of both (measurers and inspectors) requiring the placing of meters are turned into the meter setting branch, which supervises and controls the placing of all meters. When a meter is set, a report to this effect is sent from the meter setting branch to the frontage rate branch, where notation or a memorandum entry is made in the property account to show the changed condition. If the premises are fully metered, the frontage rate branch carries a memorandum entry only, showing this fact, the accounts being carried in the meter ledgers; but if only partially metered, an examination is made by the inspector before making the change upon the frontage rate records to determine whether the property has been properly metered. After the frontage rate account is adjusted, the report of the meter setting branch is then turned over to the meter rate branch, where the proper entry is made.

In this branch are also kept the records of charges for meter setting. These charges arise from bills of the city plumber, the

work being performed under the supervision of the meter setting branch and the charges therefor being collected by the building purposes and taps branch.

The records, documents, files and forms used in the meter rate branch, numbering nineteen, are of three general classes:

Records and Documents, etc., Which Pertain to Charges for the Use of Metered Water.

1. Meter rate ledgers.
2. Report of meters set.
3. Inspector's report of meters read, etc. (formerly inspector's index or field book).
4. Meter rate bill and stub (regular).
5. Meter rate bill and stub (piers, wharves and bulkheads).
6. Memorandum notice of meter rate bills unpaid.
7. Notice to consumers of amount due and unpaid.
8. Final notice to consumers of amount due and unpaid.
9. Return of meter rate bills to Receiver of Taxes as in arrears.
10. Memorandum or copy of meter rate bills in arrears sent to Receiver of Taxes.
11. Meter rate cash blotters.

Records, Documents, etc., Which Pertain to Charges for Meters and for Labor and Material Used in Setting Meters.

12. Notice to consumer to repair meter.
13. Notice to meter setting branch of consumer's refusal to repair meters.
14. Meter setting bill.
15. Voucher for meter setting bill.
16. Meter setting blotter.
17. Meter setting ledger.

Documents Which Pertain to Special Inspections and Reports.

18. Special inspector's examination form.
19. Schedule of inspector's examinations.

**Records and Documents, etc., Which Pertain to Charges for
the Use of Metered Water.**

1. The *meter rate ledger* carries all metered accounts, one account to a page. The data for opening the accounts are gathered from the reports of meters set. Each page has descriptive headings with blank spaces for the following information:

Premises
Bills to
Occupied as
What part metered
Building rate
Extras
Ward
Section
Block
Lot number

On each page are thirty-five horizontal lines, with columns ruled and headed as follows:

Date
Meter number
Size
Index at last statement
Consumption, cubic feet
Amount due for water
Credit building rate
Credit extras
Credit total
Amount due
When billed
Date of payment
Volume and folio cash entry book
Remarks

2. *Reports of meters set* are made by the meter setting branch and noted by the frontage rate branch, after which they are turned over to this branch, which opens a ledger account in one of the meter ledgers according to location of the property. The form is detached from a stub, which remains in a bound book in the meter setting branch, and provides for the consecutive number at the top, with sixteen lines for memorandum purposes. The captions, one to each line, are as follows:

Section
Block
Lot

Building rate, \$	
19 , B. R., \$	(preceding year)
Extras, \$	
19 , B. R., \$	(second preceding year)
Extras, \$	

It is from these reports that the accounts are opened in the ledgers.

3. In the *inspector's index or field book* are also entered all meter accounts. These entries are made from the reports of meters set after accounts are opened in the meter ledger. Meter readings and results of inspections showing conditions of meters are thereafter recorded in the inspector's index or field book by the inspectors. The book contains 200 ruled sheets about 10 x 5, with four columns with blank headings. The first column is used for the date of inspection, the second for the figures on the dial of the meter, the third for shorthand notes of the condition of the meters, such as N. R., meaning not registering; D. B., dial broken, etc., and the last column for remarks. As an experiment, very recently this form has been superseded by a ticket or slip calling for the same information, which is furnished to the inspectors in the order in which the bureau desires that the meters be read. At the end of each day the inspectors place the time upon the slip of the last meter reading, and this, together with all other slips read that day, is mailed to the bureau from the nearest mail box. The advantage of this method is that, when deprived of the previous records shown in the field books, the inspector is not able to estimate or approximate his reports. His personal inspection of each meter reported on is thus required; and, as these slips are taken up in regular order, the bureau is able to locate the inspectors when it is desirable to communicate with them during business hours. Readings are made and recorded about four times each year, but are entered in the meter ledgers only twice each year.

4. *Meter rate bills and stubs (regular)* are prepared from the readings entered in the ledger from the inspection books or slips, and mailed to the consumers without a formal request therefor. In this respect the method differs from that in the frontage rate branch, where bills are held until called for by the owner or agent. Bills are rendered twice each year, about May 1st and November 1st, respectively. There are special instances, however, where meters are read and bills are rendered both monthly and quarterly. All bills have coupons which are detached by the cashier at the time of payment and subsequently turned over to a clerk in

this branch for check against the postings of cash receipts made from the cash books to the credit of the respective accounts. The bill shows:

Name of person billed
Period billed for
Number (of premises)

There are seven vertical columns of varying sizes with the following headings:

Section
Volume
Folio
.....
Cubic feet
.....
Amount

In the fourth (first blank) column are ten consecutive horizontal lines giving information for five different meters:

Present index
At last statement

The sixth (second blank) column is used for the difference between the cubic feet shown by present index and at last statement. The bill also provides, at the bottom, credits for frontage rates and extras, date, and signature of the cashier. The stub shows name and premises at the top, and four columns headed as follows:

Section
Volume
Folio
Amount

At the bottom appears the net amount, with printed information reading: "This coupon must not be detached, but must be presented to the cashier on payment of the annexed bill."

5. *Meter rate bills and stubs (piers, wharves and bulkheads)* are in same general form as the foregoing, except that they are printed in red instead of black ink.

6. A *memorandum notice of meter bills unpaid* is used. This is a small slip about $5\frac{1}{2} \times 3\frac{1}{2}$ inches, attached to meter bills mailed, notifying consumers of previous charges unpaid.

7. A form called *notice to consumers of amounts due and unpaid* is in the nature of an advice sent to delinquents twice each year, and in addition to showing at the top:

Section
Volume
Folio

reads as follows: "The water rent by meter measurement for the period to, amounting to the sum of \$....., remains unpaid. You will please take notice that if the same is not paid within five days from the date of this notice, it will become my duty to shut off the water from the entire premises, according to law, and without any further notice being given."

Signed by the Register.

Its purpose is to hurry up collections.

8. The *final notice to consumers of amounts due and unpaid* is a printed form which is sent to delinquents during July of each year, reading as follows: "The water rent by meter measurement due to date of, amounting to \$....., on premises, remains unpaid. You will please take notice that if the same is not paid by August....., 190..., the amount must be returned to the Bureau of Arrears, where it becomes a lien and is subject to interest at the rate of 7%."

Signed by the Register.

9. *Return of meter rate water bills in arrears* is made to the Receiver of Taxes of the Department of Finance. All charges made as of September 30th and prior thereto of the previous year remaining unpaid on August 1st of the following year are included in this report as in arrears. This form is similar in every respect to the one described in the frontage rate branch.

10. A *memorandum of meter rate water bills in arrears to the Receiver of Taxes* is made. This is retained in the meter rate branch, and on it is shown the amounts returned on the foregoing form. Its caption is "Croton returns 190 (meter measurement)," and the headings of its columns are as follows:

Volume
Folio
Ward (section)
Ward number (lot number)
Block
Location
Amount

11. *Meter rate cash blotters* are kept in this branch. They are transcripts from the cashiers' cash books of the meter rate entries therein, used as intermediate posting mediums. From the cash blotters the receipts are posted to the meter ledgers. These

postings are then checked against the meter rate bill stubs detached at time of payment by the cashier and forwarded to this branch. The headings are as follows:

Date
Cash book
Folio
Section
Volume
Folio
Amount in total duplicated on same sheet

Records, Documents, etc., Which Pertain to Charges for Meters and for Labor and Material Used in Setting Meters.

12. A *notice to consumers to repair meters* is sent by the Water Register when the inspector reports a meter as needing repairs. This notice shows:

Section
Volume
Folio
Date

The form of notice is as follows: "You are hereby notified that inch meter, number in premises is out of order. Please send your plumber to this office for permit to disconnect this meter and have it repaired or replaced by a new meter. If permit is not obtained within ten (10) days from the date of this notice, the department will issue an order for the removal, repair and resetting of meter, charging the entire expense as a lien against the property.

Respectfully,

.....
Water Register."

13. *Notice to the meter setting branch of owners' refusal to repair meter.* If the notice above described is not acted on by him, an order is then given to the city plumber to repair the same by the meter setting branch.

14. *Bills for meters and meter setting* are rendered after receipt of the city plumber's charges for material and labor. The charge for the meter is the same as that paid by the bureau when purchasing its stock of meters. This bill is not sent nor is the amount thereof made a charge against the property until after the

owner or consumer has been notified by the meter setting branch of the amount thereof and given ten days in which to protest the charge. The entry is made in the meter setting ledger, after a voucher for payment is drawn in favor of the city plumber. This voucher serves as support for the charge.

15. *Vouchers for meter setting* are made up on a special voucher form to pay the city plumber for labor and material used in setting meters ordered by the bureau. This voucher is entered both in the meter setting blotter and the meter setting ledger.

16. The *meter setting blotter* is a bound book in which are entered the necessary details of the preceding bill. The columns are headed as follows:

Register number
Location
Amount
When paid

17. A *meter setting ledger* is kept, to which are posted the charges for meter setting, credits being posted from the meter setting cash book kept by the financial clerk in the building purposes and taps branch. This ledger has columns showing the following information:

Date
Section
Block
Lot
Location
Owner
Address
Register No.
Volume
Folio
Meter No.
Description of meter
Cost of meter
Cost of setting
Total
When paid

The meter setting blotter (Form No. 16) is checked against this record.

EXHIBIT B—VI.

DESCRIPTION OF THE PRESENT RECORDS AND PROCEDURE IN THE SHIPPING BRANCH.

This branch of the Bureau of Water Register has supervision over vessels of all kinds using city water, and issues reports weekly to the Water Register of permits issued and of vessels taking water; it also reports on leaky and damaged hydrants and issues hose permits for flushing sidewalks. This branch uses four inspectors in the field, two of whom are stationed on the water patrol boat when the latter is in service. Permits to shipping are not regularly granted for a period of less than six months, nor are extensions granted on permits for boats laid up. Permits when issued are not transferable. The scale of charges as established by the rules of the department are as follows:

Steam lighters and tugboats, high pressure....	\$90.00 per annum
Steam lighters and tugboats, low pressure.....	45.00 per annum
Pile drivers and hoisting engines.....	5.00 per month
Steam yachts.....	5.00 per month
All others.....	5.00 per month
Water boats supplying shipping.....	25.00 per month
Dredges	10.00 per month
Boilers for coal diggers, etc.....	5.00 per month
Steam barges.....	25.00 per annum
Steam pumps.....	25.00 per annum
Steam derricks.....	25.00 per annum
Oyster boats.....	20.00 per annum
Floating engines.....	20.00 per annum

The records, forms and procedure of this branch may be grouped as follows:

1. Those pertaining to shipping.
2. Those pertaining to inspections.
3. Those pertaining to the issuing of hose permits.
4. General records and reports.

Records, Forms and Procedure Pertaining to Shipping.

The first step necessary to obtain a permit for the use of water front hydrants is an application by the owner of craft or prospective water user:

1. *Application for permits for low pressure boats* are made on a printed form, which reads as follows: "No permits issued for less than six months. Application is hereby made for permit to take water from shipping hydrants for boat..... Class: Condensing or non-condensing; if condensing, is the same condensed water used over again? For what purpose? Do you work this boat's engines high pressure on any occasion? Name of applicant."

2. *Applications for permits for high pressure boats* are on a printed form, which reads: "Application is hereby made for permit to take water from shipping hydrants for boat..... Class: Condensing or non-condensing? For what purpose? What is the capacity of this boat's tanks in gallons? Name of applicant."

3. *Applications for permits for water boats* are on a printed form, which reads: "Application is hereby made for permit to take water from shipping hydrants. Name of water boat; condensing or non-condensing? What is the nature of the boats you intend to supply? State the capacity of above water boat in gallons. Name or location of the shipping hydrant ordinarily used. Name of applicant."

4. *An application record* is kept, in which the foregoing mentioned applications are entered. This record is a bound book and has columns headed as follows:

Date
Number
Boat
Statement
Permit

5. *Permits for water for low and high pressure boats and dredges* are issued after application has been properly filed and recorded. These, when issued, are detached from stubs, which remain in the office in bound books. The permit form shows:

Consecutive number
Name of the person making the payment
The amount received
The class of boat to which water is to be supplied
The pier from which such water is to be taken
The period for which the permit is issued
Signature of water register

The stub contains the same information in condensed form, with the exception of signature.

6. *Permits for water for steamboat extras* are also issued after application has been properly filed and recorded. They are issued

to owners desiring water for use on boilers, pile drivers, oyster boats, floating engines, etc. These permits when issued are detached from stubs, which remain in the office in bound books. The permits show :

Date
Name of person making the payment
Amount
Name of boat or accessory to which water is to be furnished
Period for which permit is issued
Signature of the Water Register

The stub shows in condensed form the same information, with the exception of the Register's signature.

7. *Coupons accompanying permits for high and low pressure boats* are filled out at the same time the permits are issued. These are presented to the cashier by the applicant with the permit, together with the amount called for therein. The permit is not valid until signed by the cashier, who retains this coupon and subsequently returns it to this branch for the purpose of checking against their records. The coupon shows :

Number
Name
Date
Amount

8. *Coupons accompanying steamboat extras permits* are made out on the same form as the foregoing, but on differently tinted paper. They are used and handled in the same way and for the same purpose.

9. *Notices to inspectors of permits issued* are sent out daily in this branch on letter-head form, advising them of the permits issued.

10. *A register of permits issued* is kept, in which all classes of permits issued are entered. The register is columnar in form, the headings being as follows :

Name of boat
Nature of boat
Name and address
Number of permit
Permit expires

In the back of this register is a diary in which is recorded the date of expiration of each permit.

11. *A tickler showing date of expiration of permits issued* is posted from the diary in the back of the register of permits issued. The columns show:

Name and address of owner
Class
Name of boat
Date of expiration of permit

12. *Notice to owners of expiration of permits* is made out on the date noted in the above described tickler. This notice is sent to the owner of a boat, asking him to call and renew the permit. The printed form on which the notice is sent reads as follows: "Please take notice that you are required to call at this office immediately to renew the permit for Croton water supplied to, which expired on the.....day of....."

Signed by the Water Register.

13. *Owners' affidavits* are required in case it is claimed that a boat has been out of service during the period between the date of expiration of the previous permit and the application for renewal thereof, the owner being required to take an oath to that effect before a new permit is granted. This affidavit is in the usual form.

14. *A register of low power boats* is kept, the information contained in which is taken from the report of the United States steamboat inspectors' file. The principal purposes of this register are to inform the shipping branch of boats in the harbor, and to give an authentic basis for classification of charges. All boats not classified in this register as low pressure are considered and charged as high pressure. The headings of the columns in this register are as follows:

Boat
.....
1907 inspected
1908 inspected
1909 inspected

15. *Owners' notice of boats laid up* must be given to the shipping branch, stating the cause. There is no regular form for this notice, but owners are required to notify the bureau in writing.

16. *Notice to inspectors of boats laid up* is given to guide them in their work. For this there is no printed form. Information contained in the notice is based on the foregoing notice of owners.

Records, Forms and Procedure Pertaining to Inspections.

17. *Inspectors' daily reports of boats using water* are made up on forms showing the district and date at the heading, and the following captions above the columns:

Name of tug
Location of hydrants
Time
Remarks

Instructions are printed at the top as follows: "This report must be filed each day with the Water Register. Give the name, location, time, etc., of tug taking water; also name and number of dredges and pile drivers working in your district each day. Boats taking water without permit should be separately reported in detail. Report must be rendered whenever there is a change in occupancy of any of the piers in your district, the date of shutting down and starting in of all boats that do not take water throughout the entire year; hydrants leaking or obstructed, and any waste of Croton water. Inspectors will be held strictly accountable for any dereliction of duty."

18. *An index of inspectors' daily reports* is kept. This is a bound book, and is really a register of inspectors' daily reports. The columns for information show:

Date of inspection
Date received
Number of fills
Subject matter

19. *Weekly reports to general inspector* are made. For this the branch has no regular form. It is a weekly letter made up from the index of inspectors' reports forwarded to the general inspector.

20. *A record of fills* is kept. This is a bound book, in which entries are made from the inspectors' daily reports of water craft taking water without a permit.

21. *Notices to owners taking water without permit* are sent out. For this the branch has no regular form, but, based on the entries in the report of fills, letters are written to the owners calling their attention to the violation and requiring them to forthwith take out permits.

22. *A register of leaking and damaged hydrants is kept.* Entries to this are made directly from the inspectors' daily report. Column headings read as follows:

Number
Location of hydrants
Name
Date

23. *Order to chief engineer to repair leaking and damaged hydrants* is issued when such are reported by the inspectors. This is in the form of a letter forwarded to the Engineering Bureau based on the foregoing.

24. *Weekly report to Water Register of permits issued and boats taking water* is made in the form of an ordinary typewritten letter furnishing the Water Register with the information called for by its caption, the permits being made up from the stubs in the permit book and the fills from the daily report book.

Records and Procedure Pertaining to the Issue of Hose Permits.

25. *Hose permits* are issued to owners of fully metered property for the use of hose in washing sidewalks, stoops, areas and house fronts. The permits are detached from stubs, which remain in the office in a bound book, the permit and stubs being consecutively numbered; there is no charge for the issuing thereof, the revenue to the city coming in the meter charges.

26. *A register of hose permits* is kept, in which entry is made from the stub of the hose permit book. This is used for general reference purposes only, the captions being:

Number
Premises
Name
Date
Remarks

General Records of the Office.

27. *A monthly report of cash receipts* is received by and filed in this branch. For this there is no form. The report is made by the meter rate branch. The information given is:

Amount received from steamboat meters, from steamboats and from steamboat extras.

The numbers of the steamboat meters are also shown.

28. *A cash blotter* is kept. This is a statistical record in which the information furnished to this branch by the meter rate branch appears under the following captions:

Date
Registered numbers
 Steamboat meters
 Steamboats
 Steamboat extras
Name
Amount
 Steamboat meters
 Steamboats
 Steamboat extras

The register numbers of steamboats and steamboat extras are gathered from the permit stubs of this branch.

29. *A file index* is kept. This is in bound book form, containing correspondence and memorandum data, showing:

Date
Name
Subject matter
Number

EXHIBIT B—VII.

DESCRIPTION OF THE PRESENT RECORDS AND PROCEDURE IN THE METER SETTING BRANCH.

The meter setting branch issues permits for the setting, resetting, repairing, removal, disconnection, location and testing of meters. It also directs the city plumber to do any of the above after due notices have been sent to the owner or occupant of premises or properties, collections therefor being made by the financial clerk stationed in the building purposes and taps branch.

As in the building purposes and taps and frontage rate branches, the meter setting branch to a certain extent bases its records for new meters on the *Record and Guide*, special inspection notices being made therefrom and placed in the hands of inspectors, who subsequently report on the fixtures and occupancy. Water using property recorded on the frontage rate books and charged at frontage rates is examined from time to time to determine the propriety of metering. When alterations in an old building are made, or a new building erected, and an application is made for service, calling for a tap larger than $\frac{5}{8}$ of an inch for each 25 feet or part thereof, the Engineering Bureau sends an order to this branch to meter the premises. Should the application call for a $\frac{5}{8}$ -inch tap, a special inspection is made to determine whether it is necessary to meter all or a part of the premises.

The records and procedure of this branch fall into three general groups, viz.:

1. Records and procedure pertaining to the setting of meters.
2. Records and procedure pertaining to the removal of meters.
3. Records and procedure pertaining to the repair and resetting of meters.

Records and Procedure Pertaining to the Setting of Meters.

Procedure looking toward the setting of meters is set in motion by a notice from the frontage rate branch or the chief engineer and miscellaneous sources to the meter setting branch to examine the property and to determine the advisability of metering it. It is upon such notice that orders are given to the inspectors to examine and report.

1. *Orders to inspectors to examine premises are given to determine the advisability of metering a property using water. The form is a memorandum which shows:*

Date
Name of the inspector
Premises
Ten blank lines

with instructions printed at the bottom "to examine the above premises and submit written report herewith."

2. *An inspector's report is made on foregoing examination on a form furnished, which is filled out by the inspector at the time of his examination. The report shows at the top:*

Stories
Feet front

The horizontal columnar headings are:

Location
How occupied
Faucets
Hopper closets
Pan closets
Cistern closets
Urinals
Hydrants
Baths
Extras

Vertical headings are:

Cellar or yard
Basement
First floor
Second floor
Third floor
Fourth floor
Fifth floor
Total

At the bottom of the form is space for:

Remarks
Owner's name
Address
Date and signature of the inspector

3. *A register of notices to install meters is kept. When it is decided to meter a building, an entry of such intention is recorded in this register, from which a formal notice to the owner, as de-*

scribed in Number 4, is forwarded. The register shows a consecutive number for each notice, and the headings read as follows:

Register number
Street number
Street
Owner's name
Owner's address
When and by whom notified
Permit
Part to be metered
Remarks

4. *Notice to owner to install meter* is given. This is on printed form which shows:

Number of notice
Date
Address of owner

The form quotes Section 475 of the Greater New York Charter, and gives names of meters permitted as follows:

Worthington water meter
The Crown water meter
The Thompson water meter
The Trident water meter
The Nash water meter
The Standard water meter
The Hersey rotary water meter
The Hersey disc water meter
The Worthington disc water meter
The Keystone water meter
The Trident crest water meter
The Worthington turbine water meter

The notice informs the owner that an application for a permit to set meters must be made by a licensed plumber, and shows various rules and regulations of the Water Department. It is signed by the Commissioner of Water Supply, Gas and Electricity.

5. *An inspector's return on service of notice to install meter* is made. This is on a printed form which is filled out and sworn to by the inspector after service. The form provides for:

Register number
Name
Address
Delivered to
Date of service

6. *Application for setting water meter* is made by the owner or his agent through a licensed plumber on an application blank, which shows:

Size of meter
Kind of meter
Meter number
Premises
Size of building and stories
Feet front and feet deep
Occupied as
To be finished
Date
Signature of the plumber
Address of the plumber

7. *Permit to set meter is issued after application.* This permit, with certificate attached, is detached from the stub of the permit, which remains in the bound book as an office record. This is presented by the plumber at the meter setting station to obtain a properly tested meter, the choice of which is made by the owner or the plumber. After the meter has been set the plumber fills in and signs the certificate attached to the permit, returning both permit and certificate to this branch. The permit and certificate are then turned over to an inspector for an examination of the completed work. The result of this examination is reported to the branch as explained in Numbers 14, 15 and 16. The permit reads as follows: "This permit must be presented at pipe yard to insure delivery of meter. Dated Permission is hereby given to set in water meter number in premises, subject to the rules, regulations and penalties printed on the reverse side hereof." Signed by the Water Register. The accompanying or attached certificate reads as follows: "The permit, together with the annexed certificate properly filled out and signed, must be returned to Water Register within 24 hours after meter is set, and meter must be set within two days. Referring to meter number..... in premises number.....,hereby certify that there are no openings in the service pipe between the meter and the street main, and that all the water supplied to the fixtures in the above premises or part mentioned passes through said meter." Meter set.....date. Dated..... Signed by a licensed plumber.

8. *A blotter of permits to install meters* is kept in the form of a bound book, entries in which are made direct from the stub

of permit (see No. 7). This blotter serves as a complete record of all meters placed. The number of the meter is obtained from a weekly report of meters taken from the meter testing station. The columnar headings are as follows:

Date
Permit number
Size, style and number of meter
.....
Where to be set
Date set
General inspector's report
Remarks

9. *Weekly report of new meters taken from pipe yard (meter testing station)* is made out by the inspector in charge of the meter testing station at 24th Street and Avenue A, and forwarded to the Register once each week. The columnar information is as follows:

Date
Size, style and number of meter
Name of plumber
Where to be set
Remarks

10. *Records of water meters taken from pipe yard (meter testing station)* are kept in bound book form, one book for each make of meter. Entries to these records are made from the information reported to the Water Register on the weekly reports (9). The columnar headings are as follows:

Date
On order of
Size
Number
Where placed
Permit and inspection number

11. *Notice to plumber to set meter* is given to licensed plumbers who have obtained meter permits, but who have not placed the meters in accordance with the authority granted. This notice allows ten days additional for new meters and fifteen days additional for repairs to old meters on penalty of having the permit revoked.

12. *The notice to owners to set meter* is a duplicate of the notice to the plumber (11) sent to the owner.

13. *A record of permits to set meters given to inspectors* is also kept. This is a bound book in which are entered the permits

and certificates of meter setting, the report and the return. The book is columnar ruled for entry of permit number, and ten date columns to be used if necessary in following the permit by dates to its final report.

14. *Report on final inspection of premises fully metered* is on a form which accompanies the permit and attached certificate when returned, provided the premises are fully metered. If not fully metered form 15 is used. This form provides for the following information:

- Number
- Stories
- Size
- Style
- Meter number
- Index and cubic feet
- Date set

The bottom part is used for memorandum under the headings:

- First, part metered
- Second, remarks
- Third, owner's name and address

The inspector dates and signs the following certificate: "I have examined the above premises and certify that the foregoing report is correct."

15. *Report on final inspection of premises partly metered* is made on a form to accompany the return of a permit calling for partly metered premises. The information provided for on the form is as follows:

- Number
- Stories

Columnar headings:

- Location
- How occupied
- Faucets
- Hopper closets
- Pan closets
- Cistern closets
- Urinals
- Washtubs
- Baths
- Sinks or washbasins
- Extras

Vertical headings:

Cellar or yard
Basement
First floor
Second floor
Third floor
Fourth floor
Fifth floor
Sixth floor
Total

At the bottom the form further shows:

Size
Style
Meter number
Index cubic feet
Date set

On the reverse side for memorandum purposes the following headings are shown:

Part metered
Part not metered
Remarks
Owner's name
Address

and the same certificate as in the foregoing.

16. *A record of final examination of meters set* is kept. This is a bound book with perforated stubs, in which is entered information contained in the two foregoing (final inspection of premises, etc.). The part detached by the perforation bears the same number as the stub remaining in the bound book, and is forwarded to the frontage rate branch, which changes its record to agree, after which it is passed to the meter rate branch for entry.

17. *Inspector's report on violations in setting meters.* These reports are made on printed forms upon discovery of a violation of departmental rules by the plumber in setting a new meter. At the top the form shows:

Number
Violation report
Stories

The columnar headings are:

Size
Style
Meter number
Index cubic feet
Connections

The bottom has memorandum headings as follows:

Part metered
Part not metered
Violations
Recommendations
Certificate of inspector

18. *Notice to plumber to remove violations* is issued, based on the foregoing. This is in printed letter form and reads as follows:

Number
Premises

"A recent examination of the above premises shows that..... These constitute violations of the departmental rules. Unless action is taken by you towards their removal within days from date, the same will act as a suspension of your license to do any work for this department."

Notice to owner (31) is made at same time. (Plumber's notice is a carbon.)

19. *Inspector's notice of inability to inspect premises* is also given if a report is made by the inspectors in the field books (now made on the meter reading slips) of inability to inspect the premises. There is no regular form for this purpose.

20. *Notice to owners of intention to shut off water if entry is refused inspectors* may follow in case the obstruction is not removed. This notice is in the form of a printed letter, which shows at the top number and premises, and recites: "The inspector reports to this office that he was unable to properly examine the above premises on.....on account of..... You are hereby notified to make the necessary provisions within five days from date so that our inspectors can have access to all parts of the premises during reasonable hours, as provided by Section 478 of the Greater New York Charter. In case of your failure or neglect to comply with this notice, the department can shut off the supply of water to the entire premises."

Records and Procedure Pertaining to the Removal of Meters.

Meters may be removed on application of the owners for various reasons. The premises may be such as should enjoy a frontage rate. Meters may have been set under conditions which have

changed. The cost of maintaining the meter and keeping it in repair may be excessive compared with water used. In fact, any reason may be urged which may appeal to the discretion of the Commissioner or his representatives in the Bureau of Water Register.

21. *Application to unmeter* may be made by the owners or occupants of metered premises. There is no regular form for this, the department keeping the letter in its files.

22. *A blotter of applications to unmeter* is kept in blank day book form, in which the above applications are entered. After being entered herein, the inspector is directed to make an examination and report, which is done in the same manner as described above.

Records and Procedure Pertaining to the Repair and Resetting of Meters.

A large part of the work of this branch has to do with the repair of meters. This work may be initialed by report from the meter rate branch or may originate here.

23. *Application to disconnect meter* may be made when meters are not registering or otherwise are out of order. The application must be made by a licensed plumber. It is usually made after notice is sent to the owner by the meter rate branch advising him of some irregularity. The form shows:

Section
Volume
Folio

Inspector's book number at the top, and reads as follows:
"Application is hereby made for permission to disconnect.....
size.....water meter number.....in premises number....
...., cause for disconnecting....." Signed and dated by the plumber.

24. *Permits to disconnect meters* may be issued in accordance with the foregoing application. The permit used is a printed form with a certificate attached like that used in setting meters (7). The permit also carries with it authority to reset the meter. After the meter is disconnected, the plumber takes it for repairing to the maker, to whom he shows the permit. On this authority the maker gives him an order on the pipe yard for the return of the meter after it has been repaired by the maker and properly tested at the

pipe yard. Later the plumber presents the maker's order and the permit at the pipe yard and receives the meter, after it has been properly passed upon as being in good condition. Upon resetting the meter, he fills out the certificate attached to the permit and returns it to this branch.

25. *A weekly report of repaired meters taken from the pipe yards* is made. This report is forwarded to the bureau each week by the inspector in charge of the meter testing station. Permits are checked against this report in order to verify the meter reading. The form shows the following columnar headings:

Date
Style of meter
Size
Meter number
Where to be reset
Index cubic feet
Plumber
Section
Volume
Folio
Remarks

26. *An inspector's report on meters reset* is made, after meters are repaired and reset, an inspector taking the reading, seeing that the meter registers properly and covers the entire premises or the proper part thereof. The report is made by him on a form which shows the following:

Size
Style
Meter number
Index cubic feet

Memorandum space is left at the bottom for the following:

Part metered
Part not metered
Connections

and a certificate dated and signed by the inspector: "I have examined the above premises and certify that the foregoing report is correct."

27. *A notice to owner is sent if property is not properly metered.* The information on which the notice is based may be furnished to the meter setting branch either as a result of the return of special examination (form described in number.....of meter rate branch), or from the inspector's notes gathered in this branch

at the time of making a regular inspection of the property. In this latter case there is no form. These reports are entered in the blotter of premises not properly metered (28).

28. *A blotter of premises not properly metered* is kept in a blank day book form, in which the above-described reports of premises not properly metered are registered.

29. *A memorandum of premises not properly metered* is kept in the form of a tinted filing cover for correspondence relating to investigations. It shows the following:

N. P. M. (not properly metered), No.

Premises

Section

Volume

Folio

Block

Lot

Meter books

Annual rate

Remarks

and at the bottom:

Permits issued to properly meter, No.

30. *Notice of violations—old meters.* As in the foregoing, this form is used as a backing for correspondence relative to the particular violation, and shows:

Violation; No.

Premises

Section

Volume

Folio

Part metered on meter books

Remarks

and at the bottom:

Permits issued to comply, No.

31. *Notice to property owner to properly meter premises.* A letter based on the foregoing shows number and premises, and reads as follows: "A recent examination of the above premises shows that..... You are hereby notified that it will be necessary for you to have a licensed plumber obtain permit from this office to properly meter the premises, and unless such permit has been granted within.....days from the receipt or service of this notice, an order will be given to the city plumber to properly meter

the premises, his charges becoming a lien against the property, as provided by Section 475 of the Greater New York Charter. Have your plumber present this notice when applying for permit." Signed by the Water Register.

32. *Notice to property owner to call and explain why charge should not be made for unmetered water* is sent. This is used in conjunction with the previous form. It shows at the top number and premises, and reads as follows: "Referring to the enclosed communication regarding an unmetered supply of water to the above premises, you are hereby notified to appear or send an authorized representative to this office on.....between the hours of 2 and 4 P. M., to show cause why additional charges should not be entered upon the department records for this unmetered supply; and also to furnish this office with any data in your possession (or which can be obtained by you) to show the date upon which the unmetered connections were made." Signed by the Register.

33. *A file of notices from meter rate branch of owner's refusal to repair meters* is kept in the meter setting branch. This form is described under meter rate (number.....) and is mentioned here on account of its connection with the following form.

34. *Orders to city plumber to install or reset meters* are sent on receipt of the foregoing notice. In the form of order the city plumber is directed to make the proper alterations, and the form has the following captions:

Date and address of plumber. "You are hereby authorized to place water meters on the under-described premises, owners having failed to place them in compliance with notice from this department." Signed by the Water Register.

Columnar headings are as follows:

Register number
Location
Part to be metered
Plumber's return
Size of meter
Style of meter
Number of meter
Date of setting

and at the bottom the plumber certifies as follows: "I hereby certify that the above is correct."

This certificate is signed when this form is returned to the bureau by the city plumber. From this point on the procedure in

issuing the necessary permits to the city plumber and subsequent reports by the inspector are the same as those in effect when new meters are set or old meters are disconnected for repairs and reset.

35. *Requisition for material and labor for meters set by city plumber* is made on the Water Commissioner by the Water Register. The form used reads as follows: "On account of appropriation of water meter fund No. 2." (Subsequent collections from property owners for this service are credited to this account.) "To Commissioner of Water Supply, Gas and Electricity, Dr. The work hereinafter stated and articles enumerated are necessary for the transaction of the business of the Bureau of Water Register; necessary labor and material for setting water meters in the following premises, the owners having failed to comply with the notices sent them from this office." (Space for detail.) At the bottom: "The estimated amount of this expenditure is \$. Your early attention is requested by" Signed by the Water Register. On the upper left-hand side: "The expenditure being necessary is hereby authorized," and space for the signature of the Commissioner.

36. *Notice to owner of charge for city plumbers' work* is sent out after the city plumber has made the proper installation or repair of the meter and notified this office. The form of notice is as follows:

Order number
Name of owner
Address

"There have been entered on the records of this department the following charges for furnishing and setting meters in premises number. :

Meter \$.
Material \$. "
Plumber and helper days \$.
Labor days \$.
Foreman \$.
Total \$.

Itemized bill will be forwarded later. I will certify this bill to the Comptroller for payment at the expiration of ten days from the date of this notice unless you can present positive proof or evidence that the items above are incorrect." Signed by the Water Register.

The bureau carries at the meter testing station a stock of all meters permitted to be used, from which the city plumber makes selection.

37. *A voucher form is prepared for material and labor furnished by city plumber for departmental purchases of meters.* This is made up in the meter setting branch upon the receipt of city plumber's bill properly approved, or bills of one of the several meter companies for meters delivered. At the top it is shown that it is to be charged to "account of water meter fund No. 2," and refers to the several chapters and sections of laws covering the transactions. The voucher is certified to by an inspector and the Water Register, as well as the Commissioner of Water Supply, Gas and Electricity; and at the bottom bears the usual receipt of a warrant on the Chamberlain from the Comptroller. On the reverse side provision is made for proper indexing and tracing the movement of the voucher, in accordance with the system in vogue in the Finance Department.

38. *An advice of entry refused is given to the meter setting branch by the city plumber.* There is no form for this notice, the information being furnished in a letter.

39. *Notice to owner of intentions to shut off water if entry is again refused to city plumber* is sent to the owner, based on the foregoing advice. It shows at the top number of premises, and reads as follows: "The city plumber reports to this office that he was not allowed to meter the above premises, as required by order from this department. You are hereby notified that if he is interfered with again in any manner in the performance of his duty, the water supply to the entire premises will be shut off in the street by this department, and all charges for doing so will become a lien against the property, as provided by Sections 475 and 478 of the Greater New York Charter. This action will be taken without further notice to you whatsoever and within twenty-four hours after he leaves the premises." Signed by the Water Register.

40. *An order to inspectors for general examination (not including waste)* is used when a special examination is desired. This form is also used for report on demolitions. When used for such purpose one copy of the report turned in by the inspector is forwarded to the building purposes and taps branch of this bureau, and another copy to the Chief Engineering Bureau. The form shows number at the top, and below the date, under the caption, a

memorandum, the name of inspector and the premises, with the following instructions printed at the bottom: "You are instructed to examine the above premises and submit written report herewith."

41. *Orders to inspector to examine for waste* are similar in form to the foregoing, except as to its application.

42. *Orders to owners for repairs to prevent waste* are based on the report of the inspector. They show:

Date
Waste No.

are addressed to the "Owner or Occupant," and read as follows: "A recent examination by an inspector of this department shows that in the above premises the water is wastefully and constantly running from the following fixtures..... Unless this waste is immediately stopped the supply of water will be cut off and the expense thereof and for turning on the same will become a lien upon the premises, according to law." Signed by the Water Register. Certain rules and regulations of the department are printed on the back.

43. *Notice to licensed plumbers to appear at the bureau* is given, where it is apparent after investigation of a violation, that a licensed plumber has been at fault, or when it is desired to see him for any other cause. The form shows:

Date
Name and address
Permit number

and reads as follows: "You are hereby notified to appear at this office on receipt of notice in relation to work done by you at....." Signed by the Water Register.

"N. B.—Bring this notice with you."

44. *Record of permits for resetting meters or changing the part supplied through meter.* This permit is made in red ink on the form used for repairing meters and upon application of a licensed plumber. The nature of this permit is such that after work is completed a change has to be made in the regular annual charge against a building and the meter account altered accordingly. For this purpose it is charged to an inspector as is a new meter permit, and he reports on the same form as for a new meter. A copy of this report in red ink is then made out in record of places metered and forwarded to the regular rate branch.

EXHIBIT B—VIII.

DESCRIPTION OF THE PRESENT RECORDS AND PROCEDURE IN THE OFFICE OF THE GENERAL INSPECTOR.

All of the inspectors of the department are supposed to be under the administrative direction of a general inspector. In fact, however, they are assigned to the several branches where the work is to be done, the general inspector having charge over the assignments. Inspectors may be detailed to work by the Register without reference to the general inspector. The several classes of work to which inspectors are assigned are as follows:

1. Reading meters.
2. Meters set.
3. Premises not properly metered.
4. Alterations and changes in extras on frontage rate properties.
5. Suspected illegal use of water.
6. Building purposes and taps.
7. Shipping.
8. Special.

When assignments are made to regular work on any of the first seven classes, returns are made directly to the branch for which the work is done. Special inspections may be made at any time and for any branch of the service; in case special requests are made for meter readings by the meter reading branch, these reports are made on a blank prepared for this purpose showing the premises, the size, style and number of meter, the index in cubic feet and a certificate to the effect that the inspector has examined the premises and certifies that the report is correct, with space for the signature and date.

EXHIBIT B—IX.

DESCRIPTION OF THE PRESENT RECORDS AND PROCEDURE IN THE OFFICE OF CASHIER.

The cashier is assisted in his own office by a financial clerk, a cash entry clerk, a classified cash book clerk, a clerk making up daily reports to the Comptroller of all collections, and a financial clerk stationed in the building purposes and taps branch, who takes care of all miscellaneous Water Department collections, the duties of the latter being described in Exhibit B. III. In making payment for water rents, bills and stubs for frontage rate charges are prepared in the frontage rate branch; bills and stubs for meter rate charges are prepared in the meter rate branch. These are presented to the cashier, or in his absence to the financial clerk in the cashier's office, by the consumer with the amount of money called for by the bill. The coupon is detached by the cashier or financial clerk and placed on his files for use later in the day. The bill is receipted and passed through the window to the financial clerk on his left, who makes entry in the cash book. In the absence of the cashier the financial clerk performs the duties of both cashier and financial clerk, except during the rush period. No record of the cash received is kept by the cashier, but the amount of cash he has on hand at the end of the day must balance with the amount recorded in the cash book and the general cash entry book. At the end of each day the cashier deposits the day's receipts. This account can only be drawn upon by the City Chamberlain.

1. A *cash book* is kept by the financial clerk, entries being made from the receipted bills passed to him by the cashier. The cash book is columnar ruled, with captions to show:

Section number

Name of payer

Interlined memorandum column, to show by check the
proper designation opposite amounts received

Principal

Penalty

At the end of the day the totals of the cash book should agree with the total cash on hand held by the cashier.

After entry in the cash book the receipted bill is then passed by the financial clerk to the general cash entry clerk on his left.

2. A *general cash entry book* is kept by the general cash entry clerk, entry being made from the receipted bill passed to him by the financial clerk. The details gathered from the bill itself are entered in his cash book. The general cash entry book is columnar ruled with the following captions:

Section
Volume
Folio
Lot number
Block number
Name
Front building
Rear building
Closets
Baths
Extra families
Bars
Wash boxes
Stalls
Saloons
Laundries
Barbers
Bakeries
Soda fountains
Steam engines
Blank column
Principal
Penalty

After entry in the general cash entry book the bill is passed to the person making the payment as his receipt. The total of the record at the end of the day should also agree with the amount of cash in the hands of the cashier.

3. A *classified cash book* is kept by the classified cash clerk at the right of the cashier. Entries to this are made from the coupons detached by the cashier. Some time during the day, more generally at the end of the day, these are passed to the classified cash book clerk by the cashier. The classified cash book has sixteen columns without any printed headings, the columns being alternately ruled and unruled. The unruled columns are used to show block and lot, the ruled columns being used to show amount.

4. A *deposit slip* is made up at the end of the day. The form is as follows: "Deposited by Michael C. Padden, Water Register, in the National City Bank of New York, New York,day of....." The amount of daily deposits is shown on the body

of the deposit slip. The deposit slip is made up in duplicate, one copy being certified and forwarded to the City Chamberlain as his receipt voucher, the other being retained.

5. A *Chamberlain's receipt* on a printed form is prepared by the cashier at the end of each day, which reads as follows: "Number; date; I certify that the amount of collections made in this bureau this day and since my last return on account of water rents as per detailed account thereof rendered to the Comptroller is \$. Amount of rents, \$. Amount of penalty for delay, \$. Total, \$." Signed by the Register. On the lower part of the same form the Chamberlain certifies as follows: "City of New York; Department of Finance; Bureau of Deposit and Disbursements; Chamberlain's office. Date. Received of Water Register the sum of \$., to the credit of the Commissioners of the Sinking Fund of the City of New York for the payment of interest on the city debt." Signed by the Chamberlain or his representative.

6. A *daily report to the Register* in the form of a memorandum slip is furnished to the Register by the cashier each day, showing the amount of collections as follows:

Principal
Penalties
Checks
Cash
Signed by the cashier

7. *Daily report to the Comptroller* is made. This form is prepared each day by one of the cashier's clerks from the classified cash book; it bears the following legend: "Statement of moneys received by the Water Register of the Department of Water Supply, Gas and Electricity; book.; folio.;day of." Column headings are as follows:

Section
Volume
Folio
Block No.
Lot No.
Name
Principal
Penalty

EXHIBIT C—I.

LIST OF SUGGESTED RECORDS AND FORMS FOR USE IN THE SEVERAL DIVISIONS OF THE BRANCHES IN THE BUREAU OF WATER REGISTER.

1. Records, Forms and Procedure of the Water Register's Office.

a. *Current Reports to the Register.*

- NA* 1) Weekly reports of the daily record of the time and payroll clerk, showing over and lost time.
- NA 2) Comparative monthly reports of time and payroll clerk, showing over and lost time.
- A 3) Monthly reports of the complaint clerk showing the status of complaints.
- A 4) Daily reports of the cashier showing collections classified.
- A 5) Comparative monthly reports of the cashier showing collections classified.
- RA 6) Monthly general ledger trial balance, classified account current and revenue account.
- NA 7) Detailed monthly reports of revenue—frontage rate.
- A 8) Monthly reports of the shipping branch.
- NA 9) Comparative monthly reports of boats taking water.
- A 10) Monthly reports of building purposes and taps branch.
- RA 11) Monthly reports of the meter setting division.
- NA 12) Daily reports of the chief inspector.
- NA 13) Comparative monthly reports of the chief inspector.
- NA 14) Special reports.

b. *Records:*

- A 15) Record of actions on reports showing the use of un-metered water on premises which should have been metered.
- A 16) Record of actions taken on reports of illegal use of water.
- A 17) Record of actions on complaints of excessive charges by the city plumber.
- A 18) Record of actions on complaints against licensed plumbers.

*For significance of marginal notes see Foreword.

- | | |
|--|----|
| 19. Record of actions on complaints of overcharges for water. | NA |
| 20) Card index to records of actions. | NA |
| c. <i>Files:</i> | |
| 21) Files of requests—appointments or removals. | NA |
| 22) File of notices and orders issued. | NA |
| 23) File of assignments and instructions. | NA |
| 24) File for the collection of data to be used in preparing the Register's quarterly and annual reports. | NA |
| d. <i>Forms and Stationery:</i> | |
| 25) File covers. | NA |
| 26) Notices. | A |
| 27) Form of order to the meter setting branch. | NA |
| 28) Letter heads. | A |
|
2. Records, Forms and Procedure in the Office of the Assistant Register and Chief Clerk. | |
| a. <i>The Mail Clerk:</i> | |
| 1) List of checks received by mail for the payment of bills. | A |
| 2) List of checks returned to senders. | A |
| b. <i>The Complaint Clerk:</i> | |
| 3) Complaint slip. | NA |
| 4) Complaint register. | NA |
| 5) Monthly reports on the status of complaints. | A |
| 6) Orders for inspection and returns of inspectors. | A |
| 7) Reports of inspectors to the chief inspector. | RA |
| c. <i>The Time and Payroll Clerk:</i> | |
| 8) Time and payroll record. | NA |
| 9) Time sheets. | NA |
| a) Regular. | |
| b) Inspectors. | |
| 10) Weekly reports of the daily record of over and lost time. | NA |
| 11) Comparative monthly reports of over and lost time. | NA |
| 12) Payroll. | NA |
| 13) Payroll vouchers. | NA |
| 14) Requisitions. | NA |
| 15) Orders. | NA |
| 16) Blank notices. | NA |

3. Records, Forms and Procedure in the Office of the Cashier.

- A** 1) Classified collection register.
- RA** 2) Lists of bills paid.
- RA** 3) Lists of bills paid by check through the mailing clerk.
- RA** 4) Lists of permits paid.
- A** 5) Deposit slips.
- A** 6) Receipt vouchers.
- A** 7) Daily reports of collections classified.
- A** 8) Comparative monthly reports of collections classified.

4. Records, Forms and Procedure in the General Book-keeper's Office.

a. Main Office:

- A** 1) General ledger.
- RA** 2) Monthly general ledger trial balance, classified account current and revenue account.
- A** 3) General journal.
- RA** 4) General journal vouchers.
- NA** 5) Frontage rate revenue journal.
- A** 6) Meter rate and miscellaneous revenue journal.
- A** 7) Rebate, refund, cancellation and correction journal.
- RA** 8) Authorities for rebates, refunds, cancellations and corrections.
- A** 9) Consumers' ledgers journal.
- RA** 10) Files of trial balances of frontage rate ledgers.
- RA** 11) Files of trial balances of meter rate ledgers.
- RA** 12) Files of trial balances of metered-shipping rate ledgers.
- NA** 13) Files of weekly reports of shipping permits issued.
- NA** 14) Itemized weekly reports of boats taking water.
- NA** 15) Weekly reports of building purposes and taps permits issued.

b. Billing Clerks:

- O** 16) Frontage rate bills.
- O** 17) Frontage rates receivable schedules.
- O** 18) Meter rate bills.
- O** 19) Meter rates receivable schedules.
- O** 20) Metered-shipping rate bills.
- O** 21) Metered-shipping rates receivable schedules.

- | | |
|--|----|
| 22) Schedules of authorities for refunds, rebates, increases and decreases in charges, cancellations or corrections. | O |
| c. Bill Filing Clerks: | |
| 23) Bill filing cabinets. | O |
| 24) Lists of bills sent to the cashier for payment. | O |
| 25) Cross-index to properties. | O |
| d. Card Record Clerks: | |
| 26) File cabinets containing card records. | NA |
| 27) Card record. | A |
| 28) Form of notice requesting report. | A |
| e. General File Clerks: | |
| 29) Card index to files. | NA |
| 30) General file cabinets. | NA |

5. Records, Forms and Procedure of the Division of Consumers' Accounts and Permits.

- | | |
|---|----|
| a. Consumers' Ledger Branch: | |
| 1) Frontage rate ledgers. | RA |
| 2) Trial balances of frontage rate ledgers. | RA |
| 3) Notices of penalties—frontage rates. | NA |
| 4) Requests for inspection and advices. | NA |
| 5) Requests for measurements. | NA |
| 6) Meter rate ledgers. | A |
| 7) Trial balances—meter rate ledgers. | RA |
| 8) Notices of amounts due and unpaid—meter rates. | A |
| 9) Advices of meter readings and consumption as a basis for averaging accounts. | RA |
| 10) Schedules of averaged charges. | RA |
| 11) Orders for meter readings and returns. | A |
| 12) Lists of orders for meter readings. | NA |
| 13) Inspectors' daily reports. | RA |
| 14) Schedules of meter readings. | A |
| 15) Daily schedule of violations and meter defects. | NA |
| b. Shipping Branch: | |
| 16) Metered-shipping rate ledgers. | A |
| 17) Trial balances of metered-shipping rate ledgers. | RA |
| 18) Orders for meter readings and returns—shipping branch. | A |

- NA 19) Lists of requests for meter readings—shipping branch.
- A 20) Schedules of meter readings—shipping branch.
- NA 21) Schedules of violations and meter defects—shipping branch.
- NA 22) Report on regular inspections—shipping branch.
- NA 23) Memorandum of advice as to boats illegally taking water.
- A 24) Orders for special inspections and returns.
- A 25) Notices to owners to take out permits.
- A 26) Applications for permits.
- A 27) Shipping permits.
- A 28) Register of shipping permits.
- NA 29) Weekly reports of permits issued.
- A 30) Comparative monthly reports of permits issued.
- NA 31) Itemized weekly reports of boats taking water.
- NA 32) Comparative monthly reports of boats taking water.
- A 33) Notices to owners of boats and apparatus to renew permits.
- NA 34) Index to inspectors' reports.
- NA 35) Records of fills.
- A 36) Notices to chief engineer of leaking and damaged hydrants.
- A 37) Register of water craft in New York harbor.

c. *Building Purposes and Taps Branch:*

- A 38) Memorandum from *Record and Guide*.
- A 39) Advices from Building Bureau of the Borough President's office.
- A 40) Orders for inspection and returns—building purposes and taps branch.
- A 41) Notices to builders—building purposes and taps branch.
- A 42) Application for permits.
- A 43) Permits for building purposes—regular.
- A 44) Permits for building purposes—extra.
- A 45) Permits to use hydrants.
- A 46) Permits to use hose.
- A 47) Permits for street sprinkling.
- A 48) Register of permits—building purposes
- A 49) Intermediate orders for inspection and returns.
- A 50) Orders and returns for final inspection.

51) Notices to owners to apply for permits to plug existing taps.	A
52) Applications for permits to plug existing taps.	A
53) Permits to plug existing taps.	A
54) Notices of completion.	A
55) Card index to inspections.	A
56) List of violations and meter defects.	A
57) Reports of inspections.	A
58) Notices to the chief engineer as to leaking and damaged hydrants.	A
59) Applications for permits for taps.	A
60) Permits for taps.	A
61) Register of permits for taps.	A
62) Notices to owners to make supplementary payments.	A
63) Receipts for supplementary payments.	A
64) Weekly reports of the building purposes and taps branch to the Water Register.	NA
65) Comparative monthly reports of the building purposes and taps branch to the Water Register.	A
66) Files of papers and documents.	A
67) Card index to files.	A

6. Records, Forms and Procedure of the Division of Inspections.

1) Daily reports of inspectors to chief inspector.	NA
2) Register of inspections.	NA
3) Daily reports of inspections by the chief inspector to the Water Register.	NA
4) Comparative monthly reports of inspections by the chief inspector to the Water Register.	NA
5) Time sheets.	NA

7. Records, Forms and Procedure of the Division of Meter Setting and Repairs.

1) Orders to set new meters.	NA
2) Orders to remove, repair and reset meters.	NA
3) Orders to permanently remove meters.	NA
4) Order register.	NA
5) Card index record of new meters set.	NA
6) Card index record of meters removed, repaired and reset.	NA

- | | |
|----|---|
| NA | 7) Card index record of meters permanently removed. |
| NA | 8) Notices to owners to have licensed plumbers make application. |
| NA | 9) Applications by licensed plumbers. |
| NA | 10) Permits. |
| NA | 11) Notices to plumbers of dates of expiration of permits. |
| NA | 12) Orders to inspectors. |
| NA | 13) Reports on orders sent to the division of meter setting. |
| NA | 14) Notices to chief engineer of leaks and waste. |
| NA | 15) Files of reports from the meter repair shop. |
| NA | 16) Files of papers and documents. |

EXHIBIT C—II.

DESCRIPTION OF THE SUGGESTED RECORDS AND FORMS TOGETHER WITH THE PROCEDURE RELATING TO THEIR USE.

1. Records, Forms and Procedure of the Water Register's Office.

To the end that the administrative head of the Bureau of Water Register may have regularly brought to his attention the facts necessary to intelligent direction and control over the inspections, charges, collections made, and balances due by consumers and other debtors for which he is officially responsible, it is suggested that the several divisions, offices and branches currently report as follows:

a. *Current Reports:*

- 1) *Weekly report of daily record of time and payroll clerk, showing lost time by employees as follows:*

Name of employee
Department
Time.....week ending.....
Over
Lost
Lost time
Excused
Not excused

The details of this report would be prepared each day by the time and payroll clerk from the certified time sheets received from the division, office and branch heads. It would be transmitted each Monday morning by the assistant register and chief clerk to the Water Register for his information.

- 2) *Comparative monthly reports of the time and payroll clerk showing over and lost time.* These would be prepared by the time and payroll clerk, the data for the current month being taken from the register, the data for previous months being taken from previous reports as checked to the time and payroll register, provision being made for showing in a total column the cumulative over and lost time for the current year.

- 3) *Monthly reports of the complaint clerk showing the status of complaints.* The form would be **columnar** ruled and provide for the following information:

Classes of Complaints and Advices.

- Overcharges
 - Frontage rate bills
 - Meter rate bills
 - Meter setting bills
 - B. P. & T. permits
 - Shipping permits
- Concerning meters
 - Requests for removal
 - Requests for meters to be set
 - Requests for repairs
- Miscellaneous
 - Leaks and waste
 - Personnel of service
 -
 -

With respect to each class the following information would be provided for by columnar headings:

- On hand at beginning of month
 - In hands of complaint clerk
 - Referred to division or branch heads
- Complaints received during month
- Total complaints to be accounted for
- Complaints closed during month
- On hand at end of month
 - In hands of complaint clerk
 - Referred to division or branch heads
- Complaints on hand at beginning of year
- Complaints received since beginning of year
- Complaints closed since beginning of year
 - Received during previous months
 - Received during current month

The report would also show oldest complaint not closed, complaints in hands of division or branch head open over thirty days, complaints in hands of complaint clerk open over five days. The report would be prepared from the complaint register, the classification of the register by sectional divisions and tabs being the same as the classification of complaints above. The complaints on hand in each class would be taken from the open items on the register. The complaints received in each class would be obtained

from the serial numbers. The complaints closed, would be taken from the final disposition date on the register.

4) *Daily reports of the cashier showing collections classified as follows:*

- Frontage rates receivable
- Regular rates and extras
- Penalties
- Meter rates receivable
- Property
- Shipping
- Permits
- Shipping
- Building purposes
- Building purposes extras
- Taps
- Meter setting bills receivable
- Material and labor bills receivable
- Miscellaneous

The report would serve as a recapitulation of the listing sheets made up by the listing clerk in the office of the cashier. After being proved to the cash and the totals posted to the collection journal, the report will be signed by the cashier and sent to the general bookkeeper, in whose office the total collections for the day will be proved to the total of the classified "list of bills paid" received from the bill filing clerk. The report would be signed by the general bookkeeper and forwarded to the Water Register.

5) *Comparative monthly reports of the cashier showing collections classified:*

These would be in columnar arrangement with comparative data as follows:

- Current month
- Corresponding month last year
- Increase or decrease
-months current year
-months last year
- Increase or decrease

All of the data for this report would be taken from the cashier's collection journal. Before being

sent to the Water Register the total may be proved by the general bookkeeper to the account with the Chamberlain.

- 6) *Monthly reports of the general bookkeeper showing general ledger trial balance, classified account current and revenue account.* These would be prepared from the monthly footings and balances of accounts on the general ledger, with supplementary schedules showing details of revenue accounts. The trial balance would give both the debit and credit footings as well as the balances of each general ledger account, as follows:

Asset accounts

- Frontage rates receivable
- Meter rates receivable
- Metered shipping rates receivable
- Building purposes—rates receivable
- Miscellaneous revenues receivable .
- Chamberlain
- Petty cash

Liability accounts

- Over and double payments—frontage rates
- Over and double payments—meter rates

Revenue accounts

- Revenue—frontage rates regular
 - frontage rates extras
 - frontage rates penalties
 - meter rates regular
 - shipping permits regular
 - shipping permits extras
 - building purposes permits—regular
 - building purposes permits—extras
 - taps permits
 - miscellaneous

Clearing accounts

- Auditor—meter stores
 - city plumbers' bills
 - refunds, rebates, cancellations

The classified account current would show the assets and liabilities of the division of collections of this bureau, together with the inter-departmental and division clearing accounts, as follows:

Current month

Corresponding month last year

Increase or decrease
.....months current year
.....months last year
Increase or decrease

The comparative revenue reports would show:

Current month
Corresponding month last year
Increase or decrease
.....months current year
.....months last year
Increase or decrease

The details of the above revenue totals would be shown on reports of the frontage rate branch taken from the frontage rate journal and the reports of the revenue reporting branches.

7) *Detailed monthly reports of frontage rate revenue showing:*

Total frontage rate revenue
Front building
Rear building
Bakeries
Baptistries
Barber shops
Bars, liquor and lager beer saloons
Baths and bathing tubs, private houses
Baths and bathing tubs, public and boarding
houses and bathing establishments
Bottling establishments
Dining saloons
Extra families
Fish stands
Florists
Horse troughs
Hotels and boarding houses
Laundries
Milk depots
Penalties
Photograph galleries
Soda, mineral water and root beer fountains
Stalls
Steam engines
Wash boxes
Water closets and urinals
Miscellaneous
Total frontage rates

This report would be taken from the monthly footings of the frontage rate journal kept in the office of general bookkeeper, each item being shown comparatively on the same basis as the revenue totals in the monthly report of the general bookkeeper, and would serve as a supporting schedule to the general revenue account.

- 8) *Monthly reports of the shipping branch.* These would be prepared by the clerk in charge, showing:

Metered shipping
 Unmetered shipping
 Tug boats high pressure
 Tug boats low pressure
 Steam lighters, high pressure
 Steam lighters, low pressure
 Pile drivers and hoisting engines
 Steam engines
 Steam yachts
 Water boats
 Dredges
 Boilers for coal diggers
 Steam barges
 Steam pumps
 Steam derricks
 Oyster boats
 Floating engines
 Total unmetered shipping
 Total shipping

The data would be taken from the monthly footings of the shipping register. Each item would be shown comparatively as follows:

Rate per annum
 Permits issued
 Current month
 Number
 Amount
 To end of preceding month this year
 Number
 Amount
 To end of current month this year
 Number
 Amount
 Outstanding from preceding year
 At beginning of this year
 Number
 Amount

Total to be accounted for
 Number
 Amount
 Permits cancelled
 Current month
 Number
 Amount
 To end of preceding month this year
 Number
 Amount
 To end of current month this year
 Number
 Amount
 Permits closed
 Current month
 Number
 Amount
 To end of preceding month this year
 Number
 Amount
 To end of current month this year
 Number
 Amount
 Permits outstanding at end of current month
 Number of inspections made
 Remarks

- 9) *Comparative monthly reports of boats taking water.*
 These would also be rendered to the Water Register by the clerk in charge of the shipping branch, being taken from the register and ticklers kept by him.
- 10) *Monthly reports of the building purposes and taps branch.* These would be prepared by the clerk in charge, showing by classes of permits issued:

Regular—demolitions
 —alterations
 —new constructions
 Total regular
 Extras—steam engines
 —boilers
 —fire hydrants
 —cement sidewalks
 —pile drivers and hoisting engines
 —testing gas tanks
 —sundries
 Total extras

Miscellaneous—street sprinkling

—street hose permits

—sundries

Total miscellaneous

Total building purposes

Taps permits

Screw taps

5/8-inch

3/4-inch

1-inch

1 1/2-inch

2-inch

4-inch

Over 4 inches

Total screw taps

Driven taps

5/8-inch

3/4-inch

1-inch

1 1/2-inch

2-inch

4-inch

Over 4 inches

Total driven taps

Total taps

The data would be taken from the footings of the registers of permits for building purposes and taps, each class of permits being shown on the same comparative basis as described with respect to the several classes of permits reported by the shipping branch.

11) *Monthly reports from the meter setting division.*

These would be prepared by the clerk in charge, showing:

Number of new meters placed in new buildings

By consumers

By city plumbers

Number of new meters set in old buildings

By consumers

By city plumbers

Number of meters repaired

By consumers

By city plumbers

Number of meters removed

By consumers

By city plumbers

- Number of investigations made, showing
 - Change of rates
 - Leaks
 - Inspections of plumbers' work
 - Violations
 - All others
- Number of repair permits not returned
 - By consumer's plumber
 - By city plumber
- Number of new meter permits not returned
 - By consumer's plumber
 - By city plumber
- Number of tickets sent to frontage rate branch

12) *Daily reports of the chief inspector, showing for each inspector:*

- Name
- Frontage rate measurements
- Frontage rate extra inspections
- Inspections of building alterations
- Inspections of building demolitions
- Inspections of new construction
- Shipping inspections
- Meters read
- Meter setting inspections
- Special inspections

These reports would be made up in duplicate from the daily schedules of inspections returned by each inspector, copies being kept in the office of chief inspector.

13) *Comparative monthly reports of the chief inspector* would be prepared in the office of chief inspector from the register of inspections, showing for each inspector the same information as the daily report, but exhibited comparatively by months.

14) *Special reports* would be rendered on special assignments or requests of the Water Register or Commissioner.

b. *Records:*

15) *A record of actions on reports showing the use of unmetered water on premises which should have been*

metered would be kept in the office of Water Register. This record would be in the form of an outline docket, the printed outline showing:

- Name of owner or tenant
- Report of inspector
- Location
- Special investigations relating thereto
- Conclusions

- 16) *A record of actions taken on reports of illegal use of water* would be kept in the office of Water Register, showing:

- Location
- Name of owner or tenant
- Report of the inspector
- Filing reference
- Report of the inspector or other papers supporting an investigation on the final determination or action of the Register

This record would be in the form of an outline docket, space being provided between the printed outline to carry the significant data.

- 17) *A record of actions on complaints of excessive charges by the city plumber* would be kept in the office of Water Register in docket form, showing:

- Location of the property against which the charge is made
- Name of the complainant
- Name of the city plumber doing the work
- Evidence submitted in support of the complaint
- Determination or action of the Register on the complaint

- 18) *A record of actions on complaints against licensed plumbers* would be kept in docket form, showing:

- Name of plumber
- Location of violation
- Date of notice to the plumber to appear
- Report of inspector
- Reference to the record or papers of the result of any special examination
- Evidence taken at the hearing
- Final determination or action of the Register thereon

- 19) *A record of actions on complaints of overcharges for water* would be kept in docket form, showing:

The name of the complainant

The section, block and lot number, or other property against which the alleged overcharge has been made

The character of the evidence of overcharge presented

The determination or action of the Register on the complaint

- 20) *A card index to records of actions* would be kept by the secretary to the Water Register. This would be classified alphabetically as well as cross-indexed by section, block and lot numbers.

c. *Files:*

- 21) *Files of requests for appointments or removals* originating with the Register would be kept, together with the copies of any supporting details of investigations or other information furnished to the Commissioner in support thereof. The purpose of these files would be to protect the Water Register from responsibility for incompetence or infidelity in such cases as have been reported and on which requests have been made for changes in personnel.
- 22) *A file of notices issued from the office of the Register* would form a basis for charges or as accounting information to any branch of the service where accounts are kept. Such notices as may have accounting significance should be passed through the office of the general bookkeeper.
- 23) *A file of assignments and instructions from the Water Register for special inspections to be made under the immediate direction of the Register, the assistant register and chief clerk, or general inspector,* should be kept in the office of the Register in order that these might not be accessible to the general staff in the general files.
- 24) *A file for the collection of data to be used in preparing the Register's quarterly and annual reports.* The purpose of these files would be to assist in getting reports out promptly, and preserve a complete record of reports made to the Commissioner.

d. *Forms and Stationery:*

- 25) *A form of file cover* would be kept in stock for each document or complement of documents to be carried in the file under a single number or index subject.
- 26) *A form of notice* would be kept in stock which would serve for any purpose for which notice would be issued from the office of Water Register, blank space being left to show the purpose or requirement.
- 27) *A form of order to the meter setting branch* would be kept in stock, on which all orders to set new meters, to remove, repair and reset old meters, or to permanently remove meters, would be issued.
- 28) *Letter heads* in the same form as at present would be used.

2. **Records, Forms and Procedure in the Office of Assistant Register and Chief Clerk.**

a. *The Mail Clerk:*

All correspondence which comes to the Water Register's Bureau is to be handled from this office. When mail is received it first would be opened and each letter or document would be stamped with the day and hour it is received. The mail would then be assorted according to the various branches or divisions to which it is to be referred. After assortment, all communications in the nature of complaints would be turned over to the complaint clerk, and all miscellaneous letters would be referred to the division or branch by which they are to be handled. These two classes of mail would be referred without registration.

- 1) *Lists of checks received by mail for the payment of bills* would be made on forms ruled in the same manner as the forms of "lists of bills paid" used in the cashier's office, the only difference being in the heading. The lists of checks received for payment of bills by columnar arrangement would show with reference to each check received:

Section
Block
Lot

From whom received
Amount

The lists would be prepared in triplicate on a typewriting machine with adding attachment, first noting section, block, lot and amount on a listing machine and then filling in the names from whom received on a typewriter. The triplicate would be retained by the mail clerk, the original would be sent to the cashier with the checks, and the duplicate would be sent to the bill filing clerk.

- 2) *Lists of checks returned to senders* would be prepared by the mail clerk. In case checks are received without a memorandum bill attached and without an adequate description of the property by section, block and lot number, the mail clerk would first endeavor to obtain from the cross-index of property the section, block and lot reference before listing. If the proper reference could not be obtained the checks so received would be separately listed and returned to the sender. After the checks for which adequate property reference is obtained have been listed on the "list of checks received by mail," the original copy of the list would be handed to the cashier with the checks described therein, receipt therefor being taken by the mail clerk on the triplicate and retained by him to serve as a receipted loose leaf register. The duplicate copy of the list would be handed to the bill filing clerk. This would serve as advice for assembling the bills, to be passed, with the duplicate copy of the list, to the cashier. After proving the bills thus delivered to the original list, the cashier would mark the original bills as paid and transmit them to the mailing clerk, who in turn would check the receipted bills to the triplicate list kept in his office and mail the bills to the payers, indicating by red ink entry on the list the date that the bills were returned. Original copies of the "lists of checks received by mail" in the hands of the cashier would be stamped with a rubber stamp "Bills Paid by Check" through the mailing clerk, and treated in the same manner as the "lists of bills paid" to the cashier

by the consumers direct, as set forth later in the description of the records and procedure of the cashier's office. All requests for bills coming by mail to the mail clerk would be assorted together. These would be taken by the mail clerk to the cross index of property, for the purpose of having noted thereon the reference to section, block and lot numbers. These references in hand, the mail clerk would apply to the bill filing clerk for the memorandum statement of bills requested. These memoranda of bills, with the letters of request, would then be returned to the parties making the request, the notation of the enclosure being stamped on the face of the letter, "copy of bill requested enclosed," thus avoiding the necessity for writing a letter of enclosure. Thus no registration of letters would be required in the office of the mail clerk, except a loose leaf register in the form of a "list of checks received by mail for payment of bills," and a loose leaf register in the form of a "list of checks returned." In making the "list of checks received by mail for the payment of bills" the mail clerk would also, at the same writing, make a schedule of bills paid by the cashier, thus relieving the cashier of approximately two-thirds of the details of record work which otherwise would fall upon his office. Besides, the cash received through the mail would be handled at the cashier's office at such time as not to interfere with the waiting public, thus greatly facilitating the payment of bills.

b. *The Complaint Clerk:*

Complaints and advices would be received by the complaint clerk of the chief clerk's office through (a) the mail clerk, (b) several division and branch heads, or (c) over the counter from the owner or consumer personally.

- 3) A *complaint slip* would be prepared for each communication in the nature of complaint received, which would show:

Number
Date
Section
Block
Lot
Volume
Folio
Name of complainant
Address of complainant
Location of premises
Nature of complaint

space being provided for data obtained by the complaint clerk before referring the slip to an inspector or to a division or branch head, notation as to references and date, return by the persons to whom reference would be made, notation as to final disposition, and remarks.

The initial action on complaint would be taken by the complaint clerk, who would ascertain by reference to the cross index to property and the card index record, other inquiry or inspection, whether there is a basis for complaint, and if so, the branch or division to which it is to be referred, in case the complaint may not be disposed of by the complaint clerk himself. For example: A complaint may be received over the counter from a consumer that his bill should be reduced. The complaint clerk would first have prepared a complaint slip. He would then ascertain from the cross index to property the section, block and lot number for purposes of reference and convenience in filing, and would enter this information on the slip. He would then go to the card index to ascertain what meters were on the premises, the ledger and folio reference and the name in which the property is carried, noting this also on the slip. He would then go to the meter ledger and ascertain whether the same numbers and description of meters were entered in the account, and that the name on the account corresponded with the name carried in the card index, checking this to the slip. He would also take off of the meter account on the slip the meter readings and cubic feet of water consumed. From the information thus obtained, the complaint

clerk would determine whether a mistake had been made, if necessary, checking the record back to the original return of the meter reader. If no mistake were found, the matter would be disposed of by the complaint clerk himself. If, however, it appeared that an error had been made in posting to the account, this would be referred to the general bookkeeper to determine what correction should be made. For this purpose the complaint slip would be handed to the general bookkeeper with the information contained thereon. This reference would be noted on the slip and entered in the register in the columns provided therefor; in the event of an allowance being recommended, all papers to be forwarded to the Commissioner for his information and approval.

A complainant asking that a meter should be removed would have his complaint handled in the same manner by the complaint clerk till all the data had been obtained which would be necessary for reference to an inspector detailed to the assistant register and chief clerk. For this purpose the complaint clerk would prepare an "order for inspection and return" to be handed to an inspector assigned to the chief clerk's office. After return on inspection, the complaint clerk would refer the matter to the Register or assistant register, noting this reference on the complaint slip and on the register of complaints, and if action were taken, calling for an order to remove, such order would be prepared by the Commissioner in triplicate, original sent to owner, duplicate and triplicate to complaint clerk, duplicate to be filed with papers and triplicate to be sent to the meter setting division for their information and guidance, and sent to the meter setting branch to have the meter removed. After final determination of each complaint, the papers would come back to the complaint clerk, who, first making the proper entries in the register of complaints as to final disposition, would file the complaint slip with papers attached. The slips in the hands of the complaint clerk would be carried in a temporary file.

- 4) *The complaint register* would be entered after the complaint papers had been finally returned to the complaint clerk with full record of its disposition.

The register would show:

Register number
Date received
Name of complainant
Nature of complaint
Location of premises
Section
Block
Lot
Referred to
Date
Branch
Returned by
Date
Branch
Disposition or action taken
Remarks

- 5) *Monthly reports on the status of complaints* would be made up from the complaint register as to complaints disposed of, and from the complaint slips carried in the tickler as to complaints in progress.
- 6) *Orders for inspection and returns of inspectors* would be prepared on forms for this purpose, showing:

Section
Block
Lot
Name of owner or tenant
Location of premises
Location of meters
Instructions to inspector
Return of inspector

This would be filled in as to section, block and lot, location of premises and location of meter (if report on a meter were involved), with instructions to the inspector by the complaint clerk. The return by the inspector would be certified as true, signed by the inspector and delivered to the complaint clerk.

- 7) *Reports of inspectors to the chief inspector* would accompany the returns each day, and after checking the returns to the daily report as to number, the report would be sent to the chief inspector for registration, as described in the division of inspections below.

c. *The Time and Payroll Clerk:*

- 8) *A time and payroll record* would be kept by the time and payroll clerk, on which would be recorded daily, by divisions and branches:

Name and civil service title
Time of arrival
Time of departure
Time at work
Regular time
Over time
Time absent
Excused
Unexcused
Totals by weeks (inserted in red)
Totals by months

The time of each employee would be taken from daily time sheets.

- 9) *Daily time sheets* would be made up by someone charged with this duty in the several branches and divisions in which services are rendered. Each time sheet would be certified as to its correctness by the one charged with the keeping of the time, and approved by a branch or division head, unless he were the one charged with the keeping of the time, in which case he would sign the certificate.

Time sheets would be sent in daily from each division office and branch, showing at the top:

Division or branch and date
and by columnar headings:

Name
Time of arrival
Time of departure
Nature of work
Hours at work
Hours absent
Excused
Not excused
Over time
Total
Remarks

The purpose of the daily time sheets would be to take the keeping of the time records out of the several branches and offices where the daily time is

kept, and to enable the central administration officers, through the time and payroll clerk, to exercise control and discipline over each employee. These sheets would be posted daily by the time and payroll clerk to the time record.

The daily time sheet of inspectors would be prepared by the chief inspector from the individual time slips turned in by inspectors to the branch heads to which they are assigned, as an advice accompanying the returns on orders to inspect. The daily time sheets of inspectors would contain the same data as shown above, with the exception that the "nature of work" would not be noted, this being contained on the register of inspectors.

- 10) *Weekly time reports of over and lost time* would be prepared by the time and payroll clerk from the time and payroll record. This report would be in the form described under the office of Water Register.
- 11) *Comparative monthly reports of over and lost time* would be prepared by the time and payroll clerk from the time and payroll record. This report would be in the form described under the office of Water Register.
- 12) *Payrolls* would be made up in duplicate, the original being in the form required by the Department of Finance, the duplicate showing such distribution as would be necessary to distribute the expense classification established in the department.
- 13) *Payroll vouchers* would also be prepared and certified by the time and payroll clerk, as required by the Department of Finance, and approved by the auditor before being sent to the Commissioner.
- 14).—16) *Requisitions, orders and blank notices*. The assistant register or chief clerk would keep in touch with the forms and stationery to be used by the payroll of Water Register, for the purpose of maintaining a supply sufficient to avoid delay and interference with the work of the several divisions, offices and branches, by reason of the forms of stationery giving out before new *requisitions* could be filled. He would also have charge of the making of requi-

sitions and the issue of *orders* for the bureau, thus relieving the Water Register to this extent. He would also prepare such forms of *notices* as would be issued in the name of the Water Register pertaining to the general work of the office and that did not pertain specifically to the action taken by the Register himself.

3. Records, Forms and Procedure of the Office of Cashier.

- 1) A *classified collection register* would be kept in the office of the cashier. This register would be columnar in form, one column being used for each of the following classes of accounts receivable and permits on which collections are made:

- Frontage rates receivable
 - Regular
 - Extra
 - Penalties
- Meter rates receivable
- Metered shipping rates receivable
- Shipping Permits
 - Regular
 - Extras
- Building purposes permits
- Building purposes extras
- Taps permits
- Meter setting accounts receivable
- Miscellaneous accounts receivable

Each of these columns would be ruled for reference and amount. To the classified collection register postings would be made each day from the cashier's list of bills and permits paid, as described below. In making these postings, the total of each list only would be entered, the lists being serially numbered for reference and filed in the office of the cashier in support of the register. It is from the daily footings of the columns in the register that the daily report of collections would be made to the Water Register.

- 2) *Lists of bills paid* would be prepared in the office of the cashier by a listing clerk. These lists would be columnar ruled, the headings showing:

Section
Block
Lot
Volume
Folio
From whom received
Amount

As the originals and duplicates of bills are received from the billing clerks, the cashier, upon payment of the money, having receipted the original bills, would place the duplicate bills in trays, conveniently arranged for this purpose, one tray being used for each class of bills shown on the classified collection register. These duplicates of bills paid would be listed by any combination of typewriting, listing or adding process, in duplicate, a different list being used for each class of bills.

- 3) *The lists of bills paid by check through the mailing clerk stamped "Bills paid by check through the mailing clerk"* would be kept by the cashier for the purpose of marking for identification the lists of checks received for payment of bills delivered by the mailing clerk to the cashier with the checks described therein. At the end of the day these lists so stamped, after being entered in the classified collection register, would be assembled with the "lists of bills paid," prepared in the office of the cashier by the listing clerk.
- 4) *Lists of permits paid* would also be prepared in the same manner as described above, the original and duplicate permits coming from the several branches issuing them, being treated by the cashier as bills receivable. The form of list for permits paid would be columnar ruled, showing by classes:

Permit number
From whom received
Amount

In case checks are used in payment, the name of the signer of the check would be entered in the column headed: "from whom received." In case money were received in payment, then the name of the permittee would be entered.

- 5) *Deposit slips* would be prepared by the cashier daily from the footings shown on the classified collection register, after these footings had been proved to the cash on hand. The deposit slip would be in the same form as at present used, the general fund items being separated from the special and trust and sinking fund items.
- 6) *The receipt vouchers* would also be prepared each day by the cashier for the certification of the receiving teller of the bank where the deposit was made. These would be transmitted to the Chamberlain, advising him of the amount deposited to the Chamberlain's account, all cash received each day being so deposited.
- 7) *Daily reports of collections classified* would be prepared each day and transmitted through the general bookkeeper to the Water Register. The form of this report is described above in item four (4) of the forms and procedure of the records suggested for the Water Register's office.
- 8) *The comparative monthly reports of collections classified* would be in the form described above in item five (5) of the records and procedure of the Water Register's office. This would be prepared from the forwarded daily footings of the classified collection register, and the forwarded monthly footings carried therein.

4. Records, Forms and Procedure of the General Bookkeeper's Office.

a. Main Office:

- 1) *The general ledger* would be a book of general controlling accounts to be posted through the general journal from registers and records of original entry kept in the office of the general bookkeeper, or in the several branches and divisions of the bureau under his control. All monthly closing entries would be made from the subsidiary registers and records through the general journal at the end of each month; when these are posted, the trial balances of the subsidiary books would be proved to the general ledger

accounts. The accounts carried in the general ledger would be as follows:

Asset accounts

- Frontage rates receivable
- Meter rates receivable (exclusive of shipping)
- Metered-shipping rates receivable.
- Building purposes receivable
- Shipping permits receivable
- Miscellaneous revenues receivable
- Chamberlain
- Petty cash

Liability accounts

- Over and double payments—frontage rates
- meter rates

Revenue accounts

- Revenue—frontage rates regular
 - frontage rates extras
 - frontage rates penalties
 - meter rates regular
 - metered shipping rates
 - shipping permits regular
 - shipping permits extras
 - building purposes permits regular
 - building purposes permits extras
 - taps permits
 - miscellaneous

Clearing accounts

- Auditor—meter stores
- city plumbers' bills
- revenues, rebates and cancellations

- 2) *The monthly general ledger trial balance and classified account current and revenue account* would be prepared by the general bookkeeper from the footings and balances of the general ledger accounts in the form described in item six (6) of the records, forms and procedure of the Water Register's office.
- 3) *The general journal* would be in the old style journal form, used in the manner described above in description of the general ledger.
- 4) *General journal vouchers.* Entries in the general journal would be supported by journal vouchers bearing the signatures and approval of the persons responsible for directing entries to be made. These,

after entry, would be filed by serial number, which serial number would be carried in the reference column in the general ledger and general journal.

- 5) *The frontage rate revenue journal* would be carried in the office of the general bookkeeper, which would show by columnar ruling the following:

Frontage rates receivable

Revenue

Front building

Rear building

Bakeries

Baptistries

Barber shops

Bars and liquor and lager beer saloons

Baths and bathing tubs, private houses

Baths and bathing tubs, public and boarding
houses and bathing establishments

Bottling establishments

Dining saloons

Extra families

Fish stands

Florists

Horse troughs

Hotel and boarding houses

Laundries

Milk depots

Penalties

Photograph galleries

Soda, mineral water and root beer fountains

Stalls

Steam engines

Water closets and urinals

Wash boxes

Miscellaneous

Date

Reference

Amount

The journal would be posted from the schedules of frontage rate bills, as at May 1st each year, or as written by the billing clerk if written later, one entry being made of the totals shown on each schedule, the schedules being numbered consecutively as entered, after which they would be sent to the frontage rate ledger bookkeepers for posting to the frontage rate ledgers and ultimately filed in the order of the numbers given.

- 6) *Meter rate and miscellaneous revenue journal.* A meter rate and miscellaneous revenue journal would be kept with columnar headings as follows:

Date
Number
Explanation
Reference
Folio or files
Total
Meter rates regular
Meter rates shipping
Building purposes regular
Building purposes extras
Taps
Permits
Meter setting bills
Material and labor bills
Miscellaneous

Postings would be made from the schedules of meter readings, the schedules of meter setting bills, reports of shipping permits issued, reports of building purposes permits issued and reports of taps permits issued. The reports mentioned would be checked to the cashier's lists of shipping permits before posting to the journal. Each of the schedules and reports used as a basis for entries are described under the respective branches in which they originate.

- 7) *A rebate, refund, cancellation and correction journal* would be kept for the purpose of recording all changes made in the accounts.
- 8) *Authorities for rebates, refunds, cancellations and corrections* would be of the following classes:
- Authorities for the cancellations of credits for payment of bills or permits by check when the check is returned by the bank unpaid.
 - Authorities for the reduction or increase of meter charges which have not been billed.
 - Authorities for the reduction or increase of meter rates which have been billed.
 - Authorities for the reduction or increase of frontage rate charges which have been billed.
 - Authorities for the transfer of property from a meter to a frontage rate basis necessitating the

billing of the meter charges to date, and the opening and billing of a frontage charge for a fractional year.

- f) Authorities for the transfer of property from a frontage to a meter rate basis, where the frontage rate charge has been billed but not paid.
 - g) Authorities for the transfer of property from a frontage rate to a meter rate basis, where the frontage rate charge has been paid.
 - h) Authorities for refund of payments on permits.
 - i) Authorities for refunds of over- and double payments.
 - j) Authorities for reduction of charges on meter setting bills paid by the city, but not paid by the consumer.
 - k) Authorities for refunds of charges on meter setting bills paid by the city and reimbursed to the city by the consumer.
- 8a) *Authorities for the cancellation of credits for payment of bills or permits by check when the check is returned by the bank unpaid*, would be in the form of a schedule or memorandum from the cashier, checked by the general bookkeeper to the advice from the bank as to checks unpaid. To minimize this class of corrections, the schedules of bills paid received from the bill filing clerk would not be posted until twenty-four hours after the checks were received, thus enabling the bookkeeper to make corrections on the schedules before journalizing, the cashier's daily report showing a corresponding reduction of charges by classes of revenues receivable. In event of a return subsequent to posting, the correction must first be made in the journals in the office of the general bookkeeper, and subsequently by the ledger clerks.
- 8b) *Authorities for the reduction or increase of meter charges which have not been billed* would originate with the advice from the meter ledger clerk to the clerk in charge of consumers' accounts, when an examination of the meter readings previously reported and entered had disclosed an error due to a meter

having "turned over," or to a charge made for a "turn over" which did not occur, or to meter readings erroneously posted to the wrong accounts, etc., etc. After being approved by the clerk in charge of the consumers' accounts, the authority would be passed to the general bookkeeper for his approval, after which it would be journalized in the office of the general bookkeeper and returned to the clerk in charge of the consumers' accounts, who would then have the corrections made upon the consumers' ledger.

8c) *Authorities for the reduction or increase of meter rates which have been billed* would originate with two classes of advices:

- (1) From the meter ledger clerks to the clerk in charge of the consumers' accounts, caused in the same way as those enumerated in the foregoing.
- (2) From the complaint clerk as to action taken on a complaint received from a consumer.

In the first instance the authority would be approved by the clerk in charge of the consumers' accounts and passed to the general bookkeeper for his action; in the second, the advice would be passed to the general bookkeeper directly by the complaint clerk, with the order of the chief clerk, the Register or Commissioner attached. The general bookkeeper would then authorize the bill filing clerk to withdraw the unpaid bills in file and direct that new bills be made up in accordance with the advice. The bill filing clerk would attach the originals of the bills withdrawn from his files and pass the same to the billing clerks for schedule, the billing clerks also being directed to prepare, on these authorities, new bills and schedules of new bills in place thereof. These schedules would then be approved by the bill filing clerk and returned with the originals of the old bills to the general bookkeeper, who would direct that proper entries be made in the journals affected. This being done, the schedules would be sent to the clerk in charge of consumers' accounts for distribution to the meter ledger clerks for cancellation of

the old or incorrect charge on the meter rate ledgers, and the entering of the correct charge as shown by the schedules of new bills above mentioned.

8d) *Authorities for the reduction of frontage rate charges which have been billed* would be directed to the general bookkeeper by the complaint clerk. These would originate from :

- (1) An order of the Water Register or Commissioner passing on complaints.
- (2) Upon returns on inspections by inspectors attached to the consumers' accounts branch especially detailed to examine frontage rate premises for leaks, waste, fixtures, etc.

Authorities for the increase of frontage rate charges which have been billed would be directed to the general bookkeeper for his approval and action by the clerk in charge of consumers' accounts. After reaching the general bookkeeper, the procedure would be the same as described for the reduction of meter rate charges which have been billed.

8e) *Authorities for the transfer of property from a metered to a frontage rate basis* necessitating the billing of the meter charges to date, and the opening and billing of a frontage rate charge for a fractional year, would originate with the complaint clerk after the receipt of a complaint from a consumer, which, upon investigation and inspection is found to have been erroneously classified. During the process of the complaint clerk's investigation he will have directed an inspector in the office of the chief clerk to make a special reading of the meter as of a given date, and a measurement and inspection to determine the correct frontage rate charge, so that the account may be properly closed on the meter and opened on the frontage rate basis. The procedure after reaching the general bookkeeper would be the same as that described in the foregoing paragraph, with these exceptions, that the general bookkeeper, in addition to advising the clerk in charge of consumers' accounts

to change both his meter and frontage rate records, would also advise the record clerk to transfer his card record from a meter to a frontage rate basis.

- 8f) *Authorities for the transfer of property from a frontage rate to a meter rate basis, where the frontage rate charge has been billed but not paid*, would be caused by the investigation of a complaint received by the complaint clerk from a consumer, or from advices of the clerk in charge of the consumers' accounts, as the result of an investigation or inspection made by the inspectors in his branch, detailed for the purpose of looking for leaks, waste, examining the fixtures, etc., of frontage rate property. The authority or advice would be passed to the general bookkeeper, who would direct the bill filing clerk to withdraw from his file the bills for the frontage rate charges, and pass the original bills and the advice of bills to be withdrawn to the billing clerk for a credit schedule, at the same time advising the bill filing clerk to place a marker in his bill files, indicating that the account was now on a meter rate basis, but that no bill would be rendered awaiting the first reading. The general bookkeeper would also advise the card record clerk to transfer the account on his card records from a frontage to a meter rate basis. Upon receipt by the general bookkeeper of the credit schedule with the originals of old bills attached, after being approved by the bill filing clerk, the clerk in charge of the consumers' accounts would be authorized by the general bookkeeper through the credit schedule to close the account on the frontage rate ledgers and to open an account on the meter rate ledgers, the general bookkeeper making a tickler memorandum of the meter account so as to furnish him with the proper information as to when to look for the first charge on the meter rate schedules.

- 8g) *Authorities for refunds of payments on permits* would originate with the complaint clerk either upon the complaint of the holder of a permit, or upon advice of the clerks in charge of the building purposes and taps branch and the shipping branch, respectively, the

complaint clerk passing the authority to the general bookkeeper, who, after directing that the proper entry be made in the proper journals, would instruct the clerks in charge of the building purposes and taps branch and the shipping branch to either cancel the permits, where the total charge is cancelled, or to issue new permits for the amount agreed upon as the correction.

- 8h) *Authorities for refunds of over and double payments* would originate with the complaint clerk on actions taken on complaints of consumers or permittees, or upon advice from the clerk in charge of the consumers' accounts branch. After proper investigation by the complaint clerk the general bookkeeper would make the proper entries on his general journals, and prepare a voucher or authority on the Comptroller, giving the proper reference for identification of the amount reported to the Comptroller, after which they would be returned to the chief clerk by the general bookkeeper with his approval, who in turn would forward the voucher to the Comptroller. The clerk in charge of consumers' accounts would be directed by the general bookkeeper to correct his accounts, the general bookkeeper transferring the items through the proper journal to a liability account awaiting Comptroller's advice of authorized payment.
- 8i) *Authorities for reduction of charges on meter setting bills paid by the city and not paid by the consumer* would originate with the Water Register, the chief clerk or the complaint clerk, as the result of actions taken on complaints by consumers. In any case such authorities would have the approval of the Water Register before being passed to the general bookkeeper. After entry by the general bookkeeper, he would in turn direct the cancellation or reduction of the meter setting bill by the bill filing clerk in the same way and manner as described for the reduction of meter or frontage rate bills, the bill filing clerk in due course returning the schedules with his approval to the general bookkeeper, who, after approval and

entry in the proper journals, would direct the clerk in charge of the consumers' accounts to have the proper correction made on the meter rate ledgers.

- 8j) *Authorities for refunds of charges on meter setting bills paid by the city and refunded to the city by the consumer* would originate in the same way as described in the foregoing, the voucher being prepared by the general bookkeeper for the Comptroller's use, the proper authority being prepared by the general bookkeeper to the clerk in charge of the consumers' accounts, who would direct that proper entry be made by the meter ledger clerk. This authority, however, would not be prepared until the Comptroller had advised the Water Register that the refund voucher was in correct form and had been duly paid.
- 9) *A consumers' ledgers journal* would be kept in the office of the general bookkeeper for purposes of control over each frontage rate, regular meter rate and metered-shipping rate ledger kept in the consumers' ledgers branch and in the shipping branch of the division of consumers' accounts and permits. This journal would be columnar in form, debit and credit columns being kept for each ledger as follows:

Debits
Reference
Amount
Credits
Reference
Amount

Ledger totals would run in numerical columns on the journal. Postings to the journal would be made from the schedules of frontage rate and meter rate bills from the "lists of frontage rate bills paid," the "regular meter rate bills paid," and from the daily advices or schedules of "refunds, rebates, cancellations and corrections," the items and footings on the schedules being arranged and posted by ledgers. The difference between the debits and credits under each ledger title in the consumers' ledgers journal would therefore equal the trial balance of the ledger, which is to be controlled through the journal, and

would be at all times available for proof as the trial balances of the ledgers were taken off. The procedure concerning the proving of the accuracy of the ledgers will be more fully described below.

- 10) *Files of trial balances of frontage rate ledgers* would be kept in the office of the general bookkeeper as instruments of control over the frontage rate ledgers. These trial balances would be taken off by trial balance clerks, two of whom would be continuously used in the frontage rate and meter rate branches, in order that the trial balances of all the ledgers might be taken off once each month. These trial balances would be columnar in form and written on a typewriter with adding attachment or adding and listing machine, columns being provided for section, block, lot and amount. Each day the trial balances completed by the trial balance clerk would be turned over to the general ledger bookkeeper, who would prove the totals to the balances shown on the consumers' ledgers journal described above. In case the total of the trial balance of any ledger should fail to agree with the difference between the debit and credit columns of the controlling journal described above, the clerk in charge of the controlling journal would check the entries in his journal to the schedules supporting them, and refer these schedules to the clerk in charge of the subsidiary ledger to be checked to the total entries for the purpose of discovering errors in consumers' accounts. By such method mistakes could not exist on the consumers' accounts for a longer period than one month. Once each year, and at the time that the frontage rates are returned as in arrears, the trial balance taken off from the frontage rate ledgers by the trial balance clerk would be checked in detail to the schedule of frontage rate bills prepared by the bill filing clerk, thus proving both the ledger accounts and the accounts in arrears, as well as serving as an absolute check on the cashier.
- 11) *Files of trial balances of meter rate ledgers* would be kept in the office of general bookkeeper and used in the same manner as described above, with respect to

the frontage rate ledgers. The difference in the method of discovering errors in postings would follow the differences in supporting schedules which will be more fully described in the procedure of the branches in which the schedule originated.

- 12) *Files of trial balances of metered shipping rate ledgers* would be kept in the office of the general bookkeeper for purposes of control, and treated in the manner above described with respect to the frontage rate ledgers.
- 13) *Files of weekly reports of shipping permits issued* would be kept in the office of the general bookkeeper for purposes of checking the daily returns of permits paid for as shown on the daily reports of collections classified received from the cashier, these daily returns having been entered in a meter rate and miscellaneous revenue journal before being transmitted to the Water Register.
- 14) *Itemized weekly reports of boats taking water* would be received by the general bookkeeper and kept as a basis for checking and proving the cash returns of this class from shipping.
- 15) *Weekly reports of building purposes and taps permits issued* would be used for the purpose of checking the daily returns from the cashier, as shown by the daily reports of classified collections entered in the meter rate miscellaneous revenue journal before being transmitted to the Water Register. In case any differences should exist between the returns on the weekly report of the shipping branch as to permits issued and the weekly report of the building purposes and taps branch as to permits issued, this difference would be reconciled by checking the report in detail to the list of permits paid for on file in the cashier's office supporting his daily reports of collections classified.

b. *Billing Clerks:*

In the arrangement of the offices, the billing clerks should be located near the card index record

and the meter books, in order that data may be readily accessible for the preparation of bills, bills to be prepared at regular intervals, the frontage rates being billed once per year in advance, the meter rates being billed twice each year, as at present.

- 16) *Frontage rate bills* would be written from the reverse side of the card index record on billing machines with adding attachments. The bills would be four-fold— $11\frac{5}{8}$ inches by 9 inches, with a perforated stub $1\frac{1}{2}$ inches wide on the bottom fold for holding the bills in position on the billing machine while being written. The total length of the paper contained in the folds as above described would be 48 inches. The four folds of the bills as described would consist of:

- a) A copy for the payer.
- b) A copy for the audit of receipts at the Comptroller's office.
- c) A copy for the billing clerk.
- d) A memorandum bill to be sent to the payer, or given to him on request as a statement.

Each of the several copies would be separated from the other, by being torn on a perforated line. The bills would be received from the manufacturer in folded condition. Between the folds of the bills carbons would be arranged before being placed on the carriage of the billing machine, thus enabling the billing clerk to make all four copies at one writing. The top edge of the bill would be printed for tabs of fifty different widths, each tab to be $\frac{2}{10}$ of an inch wider than the preceding one, each tab containing a number from 1 to 50 on the first set, from 51 to 100 on the second set, from 101 to 150 on the third set, from 151 to 200 on the fourth set, thus making the bills self indexing. To facilitate the billing process the bills would be interlaid with carbons by an office boy or attendant, and placed in serial number in a bill-holding cabinet specially designed for this purpose, as shown in Exhibit C, III.

- 17) *Frontage rates receivable schedules* would be prepared in duplicate by the same operation by which the bills would be written. Thus, by one writing there would be produced the four copies of bills above described and two schedules. One of these schedules would be for the use of the general bookkeeper and for posting to the ledger accounts; the second copy would be sent to the Comptroller for the use of the auditor of receipts in the auditing of bills collected. These schedules would be ruled in such manner that the columnar arrangement would exactly correspond with the details of the bills, and by use of the adding attachments a footing would be obtained on each column which would be forwarded from schedule to schedule until each ledger section of the card index record had been completed, when the forwarded total to be posted to the ledger would be subscribed. The original of these schedules arranged by ledger sections would first go to the general bookkeeper for posting by totals of each to the frontage rate revenue journal; they would then be posted in the office of general bookkeeper by ledger totals to the consumers' ledgers journal for each ledger; they would then be sent to the frontage rate bookkeepers for posting in detail to the frontage rate accounts. The duplicate of the schedules would be sent to the bill filing clerk with the bills to be filed, and after being checked to the bills as filed by him, would be sent to the Comptroller.
- 18) *Meter rate bills*, in general form similar to that described for frontage rate bills, would be written by the billing clerks from the frontage rate ledgers.
- 19) *Meter rates receivable schedules* would be written in duplicate at the same time that meter rate bills were written in quadruplicate, both the bills and the schedules following the same procedure as above described in relation to the frontage rate bills.
- 20) *Metered-shipping rate bills* would be written from the metered-shipping rate ledgers in quadruplicate.
- 21) *Metered-shipping rates receivable schedules* would be written in duplicate at the same time that the bills

were written in quadruplicate, the procedure being as above described in relation to the frontage rate bills.

- 22) *Schedules of authorities for refunds, rebates, increases and decreases in charges, cancellations or corrections* would be prepared in duplicate from the authorities, signed by the general bookkeeper or by some other person authorized so to do. Before scheduling, these authorities would be arranged by book and folio numbers, the totals being extended for each book, as well as a total for each schedule. The original of these schedules would first be posted to the journals in the office of the general bookkeeper, after which they would be sent to the ledger branches for posting in detail. A duplicate of the schedule would be sent to the Comptroller for the use of the auditor of receipts.

c. *Bill Filing Clerks:*

- 23) *Bill filing cabinets* would be kept in the office of the bill filing clerk in which the bills might be filed by section, block and lot classification. These cabinets would be composed of boxes 14 inches wide, 12 inches high and 28 inches long. The inside measurements would be $11\frac{7}{8}$ inches wide, $10\frac{1}{4}$ inches high and 24 inches long. These boxes would be arranged in cases of three boxes each, wherever counters might be necessary, in order that the top of the cases might be used as a counter. Where counters were not needed the cases would be four boxes high, thus enabling the clerks using them to easily obtain a view of each bill filed. In filing, the cases would be arranged in nine sections, corresponding to the taxing sections of the city, each case being labeled in such manner as to indicate the blocks contained within it. Within each case would be arranged guides with tabs to indicate the sequence of blocks, and between these guides would be arranged the bills in sequence of lot numbers. The bills being self-indexing, this would permit the bill filing clerk immediately to put his hand on any bill that might be desired. Bills being written in advance and ready for file on annual billing dates, the consumer, making personal application,

wishing to pay water charges, would not be required to wait until the bills were written. The ledgers keepers would also be relieved of the work of billing during the time that they would be required for posting. In case the consumer called for a statement of the amount of his charges, the clerk would turn to the section, block and lot number indicated and withdraw from the files the fourth copy, called the "consumers' statement," and return the other three copies to the files. In case the consumer called to pay water charges, the consumers' statement would be handed to him with the request that he present it to the cashier. Thereupon the bill filing clerk would detach the original and duplicate and pass them to the cashier, retaining the triplicate for his own files.

- 24) *Lists of bills sent to the cashier for payment* would be prepared in the office of the bill filing clerk from the triplicate bills retained by him. These lists would be columnar in form, the columns being ruled by sets, each set containing:

Book
Folio
Amount

five sets being contained on one page. Before listing, the triplicates would be assorted to run consecutively by book and folio numbers. The list would be made in duplicate on a listing machine, a sub-total being made for each book, and the sub-totals forwarded to a grand total for each day. One copy of the list as thus prepared would be sent to the general bookkeeper to be compared with the return made by the cashier in his daily report of collections, the amount as thus returned agreeing with the amount shown on the list. The clerk making the comparison would enter his initials on the list after the total, and post the sub-totals by ledgers to the consumers' ledger journal, after which this copy of the list would be forwarded to the consumers' ledger branch, where the items would be posted to the consumers' accounts in detail. The other copy of the list would be retained by the bill filing clerk, the triplicate of bills thus

scheduled, after being checked to the list thus retained, being sent to the clerk in charge of the general files for filing and reference.

- 25) *A cross-index of properties* would be kept in the office of the bill filing clerk, in which would be entered both the tax description by section, block and lot number, cross-reference to the property description, and the property description cross-reference to the tax description.

d. *Card Record Clerks:*

- 26) *The filing cabinets containing card records* would be of the same dimensions as the cabinets containing bills filed in the office of the bill filing clerk, described above in item 23.

- 27) *The cards of the card record* would be $11\frac{5}{8}$ inches wide by $9\frac{1}{2}$ inches deep, the top edges of the card being self-indexing by being printed and cut for tabs of fifty widths, each to be $\frac{2}{10}$ inches wider than the preceding one, and numbered on the top margin from 1 to 50 in the first set, from 51 to 100 in the second set, from 101 to 150 in the third set, and from 151 to 200 in the fourth set. Being so cut, the cards, after being written, would be arranged consecutively by section, block and lot number. For each block there would be a guide card or divider with a tab corresponding to the number of the block, the tab of the guide or divider extending above the index cards one-half of an inch. Guide cards or dividers would also be used to indicate the frontage rate ledger divisions, in order that all of the frontage rate properties carried in one ledger might be kept together in the card index cabinet. On the ledger division card or divider would be indicated the number of the ledger. The purpose of the ledger divisions would be to enable the billing clerks to conveniently write and schedule the frontage rate bills with forwarded footings for each ledger division, thus enabling the general bookkeeper to obtain his control over the ledgers from the schedules as written. The form of the card would be such as to enable a complete his-

torical description of the property to be kept thereon
so far as the same might affect the frontage rates.
On the front of the card would be:

Section
Block
Lot
Volume
Folio
Location of premises
Business or house number
Street or avenue
Size of lot
Owner or tenant
 Name
 Address
Taps
 Date
 Permit number
 Size
New construction
 Date
 Permit number
Alterations
 Date
 Permit number
Demolitions
 Date
 Permit number
Meters set or reset
 Date
 Permit number
 Meter number
 Location
Meter removed
 Date
 Permit number
 Meter number
Frontage rates—for particulars see reverse side
 Date
 Annual rate
 Fractional bill

After each of the above titles, sufficient room
would be given for a historical statement, the card
being so blocked that a number of entries might be
made to show changes, six spaces being provided for
changes of names and addresses, and ten spaces being

provided for rates, permit numbers, sizes, location, etc., under such titles as taps, new construction, demolitions, meters set and reset, meters removed, frontage rate. On the reverse side of the card would be carried the details from which the total of frontage rate charges is to be determined. By columnar ruling the following data would be shown:

Date of change

Year

Month

Day

Reference

Details of charges

Front building

Rear building

Bakeries

Baptistries

Barber shops

Bars and liquor and lager beer saloons

Baths and bathing tubs, private houses

Baths and bathing tubs, public houses

Bottling establishments

Dining saloons

Extra families

Fish stands

Florists

Horse troughs

Hotels and boarding houses

Lundries

Milk depots

Penalties

Photograph galleries

Soda, mineral water and root beer fountains

Stalls

Steam engines

Wash boxes

Water closets and urinals

Under each of the details of frontage rates, a number as above would be carried, which would correspond to the number shown on the frontage rate bill. The frontage rate bill would be made from the reverse side of the bill, the number thus serving as a guide to the typist. The horizontal ruling would be such as to provide for thirty-four changes. It is intended that the card should provide a continuous

history. In case the card becomes filled a new card would be instituted, with a reference to the old card which would be carried in a transfer folio, reference thereto being carried on the new card. The properties on the frontage rate basis would be carried in a separate file from properties on a meter rate basis. In case a property is carried on both bases, cross-references would be made. In case a property should be transferred from meter rate to frontage rate, or vice versa, the card would be transferred from the file in which it had been previously carried to the file to which it would properly belong. Should several meters be carried on one property, the notation would be separately indicated in the column "meters set or reset." Should the historical portion of the card become crowded, then a new card would be written and the old card placed in the transfer file.

- 28) *Blank forms of notices requesting report* would be kept in the office of the card record clerk for the purpose of notifying any division, office or branch head of information desired or of action to be taken. These notices would be prepared currently as needed.

e. *General Files Clerk:*

- 29) *A card index to files* would be kept in the office of the general files clerk for convenience in locating documents and papers for which he is responsible.
- 30) *General filing cabinets* would be used to contain the files and documents, reports and papers to be kept under the control of the general bookkeeper or the chief clerk for the purpose of reference or support to accounting, statistical or administrative reference. These would be of such dimensions and design as would lend themselves to facility of reference and filing, as well as accommodate the forms and documents used.

5. **Records, Forms and Procedure of the Division of Consumers' Accounts and Permits.**

a. *Consumers' Ledgers Branch:*

In order that each bookkeeper might be held responsible for industry and accuracy of work, it is

suggested that each clerk should be assigned to keeping definite ledgers. For reasons of administrative economy, it is suggested that both the frontage rate and meter rate ledgers be equitably distributed among the clerks. Assuming that there are 100 frontage rate ledgers and 60 meter rate ledgers and that there are 10 clerks, each clerk might have 10 frontage rate and 6 meter rate ledgers assigned for his keeping. This would enable the clerk in charge of the consumers' ledgers to utilize all of the clerks if need be on the frontage rate ledgers at the annual accrual period, and at dates when the prospective addition of penalties would largely increase the volume of payments of frontage rate bills; during the remaining portions of the year the clerk in charge might distribute the major part of his force to the keeping of meter rate ledgers and making current changes. Each clerk would be held responsible for keeping his ledgers in balance with the controlling accounts. Each three months the clerks might be shifted to avoid collusion with inspectors and equalize the work.

- 1) *Frontage rate ledgers* would be bound books of 500 pages each, columnar ruled, one page to be used for each account, the legend at the head of each page to show:

Section
Block
Lot
Volume
Folio
Location of premises
Size of lot
Name of owner or tenant

The columns would be captioned as follows.

Debits
Date
Reference
Folio
Current charges
Total charges
Balance current charges
Arrears

Credits
Date
Reference
Folio
Current credits
Total credits
Arrears

This ledger would be posted from the schedules of frontage rate bills, lists of bills paid, the schedules of penalties and the schedules of corrections as described in relation to the work of the billing clerks, bill filing clerk, the cashier's office, the office of the general bookkeeper and the consumers' ledgers branch.

- 2) *Trial balances of frontage rate ledgers* should be made once each month on a listing and adding machine on trial balance schedules sheets containing columns ruled by sets, to show :

Book
Folio
Amount

six sets of columns being used for each page with one hundred single-space lines per column, the footings being forwarded to a total for each book, the trial balance of each book being contained on a single page. These trial balances after being taken off would be sent to the general bookkeeper to be checked to the balance shown on the corresponding ledger account in the consumers' ledgers journal. In case the total of the trial balance did not agree with the balance of the debits and credits shown on the controlling journal, the ledger clerk would be required to locate the difference and make such correction as necessary to establish the accuracy of the account in his book. Checking for errors in posting would be to the schedules of charges, payments, changes and corrections. Differences might be located by first footing the debit and credit columns of the ledger and analyzing the entries to the consumers' ledger journal in the office of the general bookkeeper. This would show in what class of schedules the disagreement would be found. The trial balances might be continuously taken off by

trial balance clerks, in which event it is estimated that two listing clerks would be constantly employed at this work, the trial balances of the books taken off each day being returned to the general ledger bookkeeper for proof. In case the listing clerks were not assigned regularly to this work, the books as divided between the ledger clerks might be balanced by each clerk responsible for the accuracy of the ledgers kept by him. To this end he might take off a trial balance of one or more books each day in order that proof might be obtained regularly without interfering with the current work of posting. If this were done, the postings of schedules received from the previous day might first be made, after which the trial balance work could be taken up. This is suggested for the reason that it would be necessary to have all of the schedules posted to the ledgers which have been posted to the controlling journal, otherwise the trial balance would not prove out.

- 3) *Notices of penalties—frontage rates* would be prepared from the frontage rate ledgers by the ledger clerks at such times as would be required by the rules of the department. These notices might be prepared by the bill filing clerks, but owing to the fact that at the time these notices ought to be prepared the bill filing clerks might be extraordinarily busy, it would appear that the clerks in charge of consumers' ledgers would be more available. The form of notice would be such that when folded it would bring the name and address in such position as to admit of the use of the window envelope. The notices after being prepared would be sent to the mailing clerk to be folded, enclosed and mailed.
- 4) *Requests for inspection and advices* with respect to frontage rates extras might originate in this branch if in any manner it appeared that question would arise as to the adequacy of the present charges. The information on which such requests would be made might come in on returns of meter readings or on

reports of inspectors examining for leaks, waste, etc.
The requests would be made to the complaint clerk.

- 5) *Requests for measurements* might also be issued from this branch if for any reason it appeared that such a new measurement should be made.
- 6) *Meter rate ledgers* would be bound books, 500 pages each, columnar ruled, one page being used for each meter account. The legend at the top of each page would show:
 - Section
 - Block
 - Lot
 - Book
 - Folio
 - Location of premises
 - Size of lot
 - What part metered
 - Name of owner or tenant
 - Style and size of meter

The captions to the columnar headings would be as follows :

Debits
Date
Reference
Folio
Meter
Number
Size
Index to last statement
Consumption cubic feet
Regular
Meter setting charge
Total charges
Balance
Credits
Date
Reference
Folio
Regular meter
Meter setting
Total credits
Arrears
Dates
Credits

- 7) *Trial balances of meter rate ledgers* would be made in the same manner and subject to the same procedure as above described, with regard to the trial balances of frontage rate ledgers.
- 8) *Notices of amounts due and unpaid—meter rates* would be prepared by the clerks in charge of ledger accounts from the meter rate ledgers. The form of notice would be such as to admit of the same practice in mailing as described with respect to notice of frontage rate penalties. (Item 3, above.)
- 9) *Advices of meter reading and consumption as a basis for averaging accounts* would be prepared by the consumers' ledgers clerks, for the information of the general bookkeeper. The form would provide for an amount to be charged and for three initials or signatures, viz.: the one taking off the information from the ledgers, the one making the computation and the one approving the charge. After being approved, these advices would be scheduled.
- 10) *Schedules of averaged charges* would be prepared in the office of general bookkeeper. These would be the same in form as schedules of changes, except as to title. The total of each schedule would be posted to the "meter and miscellaneous revenue journal"; the totals of ledgers would be posted to the "consumers' ledgers journal," after which the items, in detail, would be posted to the consumers' ledgers.
- 11) *Orders for meter readings and returns* would be made on slips prepared by a clerk acting directly under the clerk in charge of the consumers' ledgers, the slip to show in the legend:

Serial number
Volume
Section
Block
Lot
Location of premises
Location of meter
Date and hour of reading

and by columnar ruling the inspection and readings as follows:

Size of meter
Style of meter
Meter number
Index in cubic feet

Space also should be provided for remarks concerning violations and defective meters with an outline certificate to the effect that the inspector had examined the premises described and certifies that the foregoing report is correct. In preparing this slip, the clerk would fill in:

Serial number
Volume
Folio
Section
Block
Lot
Premises

leaving the remaining spaces in the form blank for the inspector to complete as his return.

- 12) *A list of orders for meter readings* above described would be made up for each inspector to whom the slips are to be given, the slips to be numbered serially and listed in numerical sequence, each inspector to have a different series.
- 13) *An inspector's daily report* would be prepared by each inspector at the end of each day, showing:

Date
Hour and minute of beginning first inspection
with reference to the number of inspection
on which return is made
Hour and minute of completion of last inspection
with reference to the number of the
last slip on which return is made
Number of inspections returned for the day

This report would accompany the slips returned to the clerks in charge in the branch of consumers' accounts, and after being proved as to the number of inspections made would be forwarded to the general inspector for the purpose of entry in his register of daily inspections and for use in making up the daily time sheets hereinbefore described.

- 14) *Schedules of meter readings* would be prepared by a listing clerk from the meter slips as thus returned.

For this purpose the meter readings from meter slips received from all of the inspectors each day would first be assorted by volume and folio. The schedules of meter readings would be columnar ruled with columns for:

Volume
Folio
Last reading
Previous reading
Consumption.....cubic feet

On listing the returns, the first three columns would be filled in by the testing clerk, and when listed would be handed to the clerks in charge of the meter ledgers for posting. Each clerk when posting would fill in the columns "previous reading" and "consumption cubic feet" to correspond with the entries made by him in the meter ledgers. After being thus completed, schedules would be returned to the general bookkeeper for computation as to the total charges for water consumed and posting to the "meter rate and miscellaneous revenue journal" for purpose of control over the charges to meter readings, as described in relation to the work of the general bookkeeper.

- 15) *A daily schedule of violations and meter defects* would be prepared by a listing clerk from the meter reading slips, the schedule showing:

Section
Block
Lot
Volume
Folio
Meter number

with additional columns for remarks and reference, these columns to be left blank at the time that the schedule is prepared. Each day the schedules as thus prepared would be sent to the meter setting division and would serve a triple purpose: (1) as an advice to the meter setting division; (2) as a register of inspections, and (3) as a register of corrections of violations and meter defects.

b. *Shipping Branch:*

- 16) *The metered-shipping rate ledgers* would be kept in the shipping branch for convenience of reference and to assist in the administration. These ledgers would be in the same form as above described for meter ledgers in the consumers' ledger branch.
- 17) *Trial balances of metered-shipping rate ledgers* would be taken off and treated in the same manner and subject to the same procedure as above described in relation to trial balances of frontage rate ledgers and meter ledgers.
- 18—21) *Orders for meter readings and returns—shipping branch* would be prepared by the clerk in charge in the same form as that above described in relation to the accounts kept in the meter rate ledgers. These slips *would be listed* before being sent to the inspectors for readings, and after readings had been returned the *readings would be scheduled* and a *daily schedule of violations and meter defects* would be prepared following the procedure above outlined in relation to the meter reading accounts.
- 22) *Reports on regular inspections—shipping branch* would be made by inspectors having a roving commission to go from pier to pier or to follow boats and report illegal taking of water, or other violations of the rules of the department, by water craft. The same form of report would be made by inspectors on the water patrol boat.
- 23) *Memoranda of advices as to boats illegally taking water* would be prepared by anyone in the shipping branch receiving notice from the Water Register, an inspector or any person whatsoever, as to boats illegally taking water.
- 24) *Orders for special inspections and returns* would be made upon advice received. These requests would be made on a form which would both serve as an order for inspection and as a form for the return of the inspector. The form would show:

Date
Name of boat or apparatus
Instruction
Return
Certificate
Signature of inspector

- 25) *Notices to owners to take out permits* would be issued upon the return of the inspector described above. In case owner failed to comply with such notice a warrant for his arrest would be issued.
- 26) *Applications for permits* would be made out by the owner or agent of a vessel either voluntarily applying to the bureau or in response to notice. Such application would provide for information with respect to shipping extras, and for an affidavit as to the truth of the statements made. The application and affidavit would be signed by the owner or agent before the permit was issued.
- 27) *Shipping permits* would be issued only on application as described above. Each permit would be prepared in duplicate, each copy bearing a graduated stub. The permit stationery would be engraved, the different amounts for which permits may be issued being engraved on the stationery. The blank lines on the permits would be as follows:

Date
Name of permittee
Name of boat to which permit was issued
Pier or location from which water is to be taken

The same information would be carried on the stub. The permits and stubs would be made up on a typewriter by carbon process ready for signature, the class and the year of termination being stamped in red in large letters across the face of the permit and stub. After the permit had been prepared it would be signed by the clerk in charge, who after signing would tear off the coupons by use of an angle rule in such manner as to show on the graduated stub the month and day on which the permit would terminate. The original and duplicate permit would then be handed to the cashier, who, upon receiving

payment therefor, would sign the permit for the register and deliver it to the payer. By the cashier the duplicate permit would be treated in the same manner as a duplicate bill for water rates. One copy of the graduated stubs of permits issued would be retained by the clerk in charge of the shipping branch. These would be so filed in a cabinet or case as to permit him to use them as a tickler of expiration dates as well as evidence supporting his permit register. The duplicate copies of the stubs of permits issued would be sent to the general bookkeeper by the clerk in charge of the shipping branch. These would be used by him to prove the daily cash statements received from the cashier, and as a tickler of expiration dates by means of which the general bookkeeper might know whether or not the owners of craft were properly renewing their permits.

- 28) *A register of shipping permits* would be kept in the shipping branch, which would show:

- Number of permit
- Date
- To whom issued
- Boat or apparatus
- Total amount
- Tug boats—high pressure
- Tug boats—low pressure
- Steam lighter—high pressure
- Steam lighter—low pressure
- Pile drivers and hoisting engines
- Steam engine
- Steam yachts
- Motor boats
- Dredges
- Boilers for coal diggers
- Steam boilers
- Steam pumps
- Steam derricks
- Oyster boats
- Floating engines
- Miscellaneous

- 29) *Weekly reports of permits issued* would be made for the register as above described. The number of permits and the amounts by classes would be taken from the register of permits.

- 30) *Comparative monthly reports of permits issued* would be made from the same source as the weekly reports, the monthly totals being taken instead of weekly footings, comparative figures being taken from previous periods. This comparative report is more fully described under the "reports to the Water Register."
 - 31) *Itemized weekly reports of boats taking water* would also be made. These would be made up from the tickler above described, and would be arranged in the order of the expiration dates of the permits under which water would be used.
 - 32) *Comparative monthly reports of boats taking water* would be made up from the weekly reports above described.
 - 33) *Notices to owners of boats and apparatus to renew their permits* would be issued immediately prior to the expiration dates from the tickler of dates of termination as described above.
 - 34) *An index to inspectors' reports* would be kept in the shipping branch for the purpose of ready reference to the files and inspection returns, which would be kept in the order of the names of the craft and apparatus taking water.
 - 35) *A record of files* would be kept for the purpose of permanently recording the boats reported as illegally taking water in harbor.
 - 36) *Notices to the chief engineer of leaking and damaged hydrants* would be issued from notations made on inspectors' reports.
 - 37) *A register of water craft in New York harbor* would be kept for the purpose of carrying a complete record of all vessels and water craft regularly touching here. This would serve as a general administrative guide and protection against vessels taking water without permits.
- c. *The Building Purposes and Taps Branch:*
- 38) *Memoranda from the Record and Guide* would be made as to all demolitions, alterations or new construction work. These memoranda would be used to initiate proceedings with respect to inspections, per-

mits, etc. The chief clerk would examine the *Record and Guide* each week and place his initials opposite each item in the *Record and Guide* which, in his opinion, were minor changes not calling for a charge for water. These items would then be submitted to the Water Register for his information. If, in his opinion, any of them were doubtful, such items would then become a subject for special inspection. After memoranda had been completed for all demolitions, alterations or new construction work for which charges were to be made, and after the items for which no charges were to be made had been initialed by the chief clerk and finally passed on by the Water Register, the *Record and Guide* would be filed and become a permanent record of the office.

The memoranda containing the items for which charges were to be made would be entered direct from the *Record and Guide* into a bound book showing:

Section
Block
Lot
Permit No.
Location of premises
Name of owner
Business address
Name of builder
Business address
Description of building or improvements
Plan
Number and date filed
Building Bureau advice number
Remarks

- 39) *Advices from the Building Bureau of the Borough President's office* would be obtained if such an arrangement might be made with this bureau or by ordinance. These advices would be consecutively numbered and provide for the same character of information as is provided for on the form above described as a memorandum made from the *Record and Guide*.
- 40) *Orders for inspection and returns—building purposes and taps branch* would be prepared by the clerk in

charge, in duplicate by carbon process, from the memoranda taken from the *Record and Guide*, from advices obtained from the Building Bureau or other sources of information, bringing to the attention of the clerk in charge of the branch that the demolition, alteration or new construction was in progress or about to take place. This form would show:

Section
Block
Lot
Location of premises
Name of owner of building
Business address
Date of inspection
Character of improvements
Size and character of building
Service taps
Size
Location
Building extras
Probable date of completion
Remarks (leaks, waste, etc.)
Certificate

The certificate to be in effect in some such form as follows:

"I hereby certify that I have examined the premises on the date and hour above mentioned, found them in the condition described, and personally served notice on the owner (or builder) to appear at the office of the building purposes and taps branch of the Department of Water Supply, Gas and Electricity, to take out a permit, such notice being served by leaving the same on the premises (or by mailing the same to the address above described).

.....,
Inspector."

In making such a certificate the inspector would line out the words descriptive of the party served and the manner of service of notice, which should not be included in the certificate, leaving only a proper description of the service as made. All of the blanks on this form would be filled out in the

office, except those intended for the return of the inspector, which would be filled out by him at the time the inspection was made. The duplicate copies of orders would be filed in ticklers by dates of issue, to assist the clerk in charge to keep in touch with the work of each inspector. At the end of each day the inspector would turn in the advices and returns of inspections made on that day, at which time the duplicates would be taken from the tickler and stamped with the day of return, the duplicates then being placed in a permanent file by sections, blocks and lots.

- 41) *Notices to builders* would be prepared in duplicate, the original to be served by inspectors in the same manner as at the present time, the copy to go on file. The present form would be amplified by adding the words "bringing with you a statement signed by the architects containing the information called for in the enclosed form of letter."
- 41a) *An architect's estimate* would be procured by enclosing with the notice to builder a form of letter addressed to the Water Register as follows:

"We beg to advise you that we estimate the quantities of materials to be used in building operations at.....; owner.....; contractor.....; Building Bureau plan number.....; to be as follows:

.....cu. yds. of masonry.
cu. yds. terra cotta (outside walls, door sills, window sills, coping, etc.).
cu. yds. concrete (flooring, etc.).
cu. yds. cement.
sq. yds. of plastering.
cu. yds. of terra cotta fireproofing.
cu. yds. floor arches.
brick.

Yours truly,

 Architect."

The owner or builder in turn would present this letter to the architect to furnish the information called for therein, over his signature. The con-

tractor or owner would then present it to the clerk in charge of the building purposes and taps branch at the time of making application for a permit.

- 42) *Application for permits* would be made by contractors or owners, either upon their own initiative or after notice served, as described above. These applications would be in the same form as at present, with the exception that they would state therein the apparatus or appliances to be used which are necessary to the computation of the charge for building purposes extras. The form would also provide for the affidavit of the owner to the effect that the statements as made are true.

- 43) *Permits for building purposes—regular*—would be made in duplicate, and stubs in duplicate would be made in the same form as described for permits to be used by the shipping branch, with the exception that the graduated stub would show the amount of the permit instead of the terminal date, thus enabling the clerk issuing the permit to show both on the permit itself and on the stub detached therefrom the amount which the cashier collected therefor. The class of permit would be stamped in red ink across the face of the permit and the stub, and the original and duplicate would be handed to the cashier. After payment, the cashier would sign the original for the cash register, and hand it to the permittee, retaining the duplicate to be used in the same manner as described for duplicate bills. One copy of the stub would be retained by the clerk issuing the permits to support his entries in the register of permits; the other copy would be sent to the general bookkeeper with his weekly report, thus enabling the general bookkeeper once each week to check the daily reports of collections received from the cashier. In this relation it is suggested that by administrative agreement or ordinance the Building Bureau of the Borough President's office be not allowed to issue a demolition, alteration or new construction permit until a permit has first been taken out from the Water Department and displayed by the applicant as his authority.

- 44) *Permits for building purposes—extras*—would be issued at the same time as the permits for building purposes regular, the information upon which the permit would be issued being contained in the form of application for permit above described. The permit as issued, however, would be subject to correction and supplementary charge after inspection had been made of the premises to determine whether or not the amount of the charge should be increased. The form and procedure as to the permit would be, in general, the same as that above described for building purposes—regular.
- 45) *Permits to use hydrants* would be issued by the building purposes and taps branch upon application of builders, in case it is shown after inspection that the builder or owner could not readily or economically obtain a supply of water in any other way. The issue of these permits and the procedure relating thereto would be the same as at present.
- 46) *Permits to use hose* would be issued upon application to persons having metered service. These permits would be prepared and signed by the clerk in charge of the building purposes and taps branch and countersigned by the clerk in charge of the meter setting branch and issued direct to the permittee, without payment therefor, the charge for the use of water being a part of the meter rate on the property.
- 47) *Permits for street sprinkling* would be issued under the same conditions as at present.
- 48) *A register of permits—building purposes*—would be kept in the building purposes and taps branch. This register would be columnar ruled, with columnar headings, as follows:

Permit No. (consecutive)
Date
Issued to
Purpose
Building purposes regular
 New construction
 Alterations
 Demolitions
Total building purposes regular
Building purposes extras

Steam engines
Boilers
Cement sidewalks
Pile drivers and hoisting engines
Testing gas tanks
Sundries
Total building purposes extras
Miscellaneous
Street sprinklers
Sundries
Total miscellaneous

Since no charges would be made for permits issued for the use of fire hydrants and street hose permits, these would be in the same form as at present used, and no columns would be provided for accounts in the register of permits. On this account a separate register with a separate series of numbers might be kept for these two classes if desired.

- 49) *Intermediate orders for inspections and returns on inspection* would be made during the progress of work on a form, and would follow a procedure similar to that described for original orders for inspections and returns. After permits had been issued and registered, the clerk in charge would, from time to time, make out these intermediate orders and place them in the hands of the inspector for returns.
- 50) *Orders and returns for final inspection* would be made on the same form as above described, the word "final" being stamped thereon by a rubber stamp upon the report of the inspector that the work had been completed. In case of demolitions completed, in addition to the foregoing, the inspector would report on the number and location of existing taps and service connections, whether they had been finally plugged up or not.
- 51) *Notice to owners to apply for permits to plug existing taps* would be prepared and sent out, if on return of the inspector it appeared that all existing taps were not plugged.
- 52) *Application for permits to plug existing taps* would be made on the same general form as application for taps, the only difference being in the title.

- 53) *Permits to plug existing taps* would be issued direct to the applicant, the form and procedure being the same as that relating to permits for building purposes.
- 54) *Notices of completion* would be prepared and sent to the consumers' ledgers branch, the shipping branch or any other branch or division of the service affected by the completion of a demolition, alteration or new construction. These notices would be made by carbon process in such numbers of copies as would be necessary, and would be sent by the building purposes and taps branch through the office of general bookkeeper, in order that the general bookkeeper might obtain the advice necessary to the authorization of accounting entries and the exercise of control.
- 55) *A card index* would be carried in the building purposes and taps branch for the purpose of keeping in touch with the inspections, completions of work and the expirations of permits. For this purpose a card would be carried for each property in the process of demolition, alteration or new construction, the cards to be assorted and reassorted by dates on which further action would be taken. After the operations are completed the cards would be transferred to a file, leaving only the building operations which were in progress in the tickler.
- 56) *A list of violations and meter defects* would be prepared from the reports of inspectors, to be sent to the meter setting division each day, to be in the same form and treated in the same manner as the lists of violations and defects reports by the clerk in charge of the division of consumers' accounts hereinbefore described.
- 57) *Reports of inspections* similar in form to those described for use of meter readers would be made by each inspector or measurer each day, to be sent to the chief of the division of inspections.
- 58) *Notices to the chief engineer* as to leaking and damaged hydrants would be prepared from advice returned by the inspectors. These would be written

in duplicate, one copy being retained in the building purposes and taps branch and filed with the other papers pertaining to the property reported on.

- 59) *Applications for permits for taps* would be made in the same form as at present, the application being required before permit would be issued. These applications would be approved by some one authorized so to do in the office of chief engineer, at which time the chief engineer would also sign an order on a tapper which would become effective only after the counter-signature of the cashier, affixed at the time the permit would be paid for.
- 60) *Permits for taps* would be issued in the same general form and follow the same general procedure as described in permits issued for building purposes.
- 61) *A register of permits for taps* would be kept, which would be columnar in form with column headings as follows:

Number
Date
Issued to
Purpose
Screw taps
5/8-inch
3/4-inch
1-inch
1 1/2-inch
2-inch
4-inch
Over 4-inch
Total screw taps
Driven taps
5/8-inch
3/4-inch
1-inch
1 1/2-inch
2-inch
4-inch
Over 4-inch
Total driven taps

- 62) *Notice to owners to make supplementary payments* would be made out and sent to owners of buildings if, after inspection, it were found that the permits issued for this purpose in the department were for a

less amount than should have been charged. The form of the notice would recite that in case the owner did not call and make the supplementary payment within the time specified, the permit to use water would be cancelled.

- 63) *Receipts for supplementary payments* would be given to the permittee in forms similar to the permits themselves. That is to say, the receipts would be prepared by the clerk in charge of the building purposes and taps branch in duplicate, with stubs in duplicate, on a typewriter by carbon process, each receipt having a graduated stub. The coupons, when detached by means of an angle rule, would indicate the amount for which the receipts would be given. The original and duplicate of the receipts would be sent to the cashier and treated in the same manner as the original and duplicates of bills. The stubs would be treated in the same manner as the stubs of permits issued by the building purposes and taps branch.
- 64) *Weekly reports of the building purposes and taps branch* would be prepared from the registers on the form described under the Water Register's office.
- 65) *The comparative monthly reports* would be prepared from the same source and on the form described under the Water Register's office.
- 66) *Files of papers and documents* issued or received by the building purposes and taps branch would be kept by section, block and lot classification, all data pertaining to a single lot being kept in the same file.
- 67) *A card index* would be kept in the building purposes and taps branch, on which would be shown the description of properties, cross-indexed to section, block and lot. This would enable the clerk in charge at any time to refer immediately to the files from property description.

6. Records, Forms and Procedure of the Division of Inspections.

As suggested above in description of the work of the complaint clerk, the inspectors of the department would at all times work

under definite orders. These orders would come from the Register, the assistant register, the complaint clerk or the clerks in charge of branches authorized to order inspections to be made. All orders would be given to inspectors assigned to the division or branch issuing them. Should the inspectors assigned to any branch be insufficient to perform the work, or incompetent, or should they make false returns, these facts would be immediately reported to the chief inspector and to the Water Register. Assignments would be made by the chief of the division of inspections on order from the Water Register or assistant register and chief clerk. The measurers would be considered as a class of inspectors and come under the chief inspector for purposes of report to the Water Register, but would be definitely assigned to the building purposes and taps branch for work. The regular assignment of inspectors would be as follows:

- a. To the assistant water register and chief clerk for special assignments and investigation of complaints.
- b. To the clerk in charge of the shipping branch of the division of consumers' accounts and permits for water front patrol duty and shipping assignments.
- c. To the chief clerk in charge of the building purposes and taps branch of the division of consumers' accounts and permits for inspection of demolitions, alterations, new constructions and measurement of buildings.
- d. To the clerk in charge of the consumers' ledgers branch of the division of consumers' accounts and permits for meter readings.
- e. To the clerk in charge of the meter setting and repairs division for inspection of meters set and of plumbing connected with meter setting repairs and removals.

All of the "orders for inspection and returns" would be made up by the clerks in charge of the branches and divisions to which the inspectors would be assigned. The records and procedure of the office of general inspector would be as follows:

- 1) *Daily reports of inspectors to the chief inspector* would be sent in with the returns on orders for inspections. These reports would first be checked by the clerk in charge receiving the returns, and by him would be forwarded to the general inspector.
- 2) *A register of inspections* would be kept by the general inspector. This would be posted from the daily reports of the inspectors to the general inspector. The register

would be a loose leaf book, columnar ruled, one page being used for each inspector, the head of which would be lined for name and address. The pages would be alphabetically arranged. The columnar headings would be as follows:

- Year
- Month
- Day
- Time of beginning the first inspection of the day
- Time of completing the last inspection of the day
- Number of inspections
- Special assignments
- Frontage rate measurements
- Frontage rate extras
- Building purposes regular
- Demolitions
- Alterations
- New constructions
- Building purposes extras
- Shipping unmetered
- Meter readings
 - Regular
 - Shipping
- Meter setting and plumbing
- Remarks

- 3) *Daily reports of inspections* would be prepared by the chief inspector for the Water Register, showing:

- Names of inspectors
- Number of inspections made
- Special assignments
- Frontage rate measurements
- Frontage rate extras
- Building purposes regular
- Demolitions
- Alterations
- New constructions
- Building purposes extras
- Shipping unmetered
- Meter readings
 - Regular
 - Shipping
- Meter setting and plumbing
- Remarks

These would be drawn off of the daily reports of inspectors as a recapitulation before being posted to the register of inspections.

- 4) *Comparative monthly reports* would be prepared by the chief inspector for the Water Register. The same information as above forms the comparative monthly basis for the expired months of the year.
- 5) *Time sheets* would be prepared by the chief inspector in the same form as described under the time and payroll clerk. These would be made up from the signed daily reports of inspectors returned through the branches to which inspectors would be assigned.

7. Records, Forms and Procedure of the Division of Meter Setting and Repair.

The meter setting division would be divorced of all accounting records, and would not have any initiative or discretion as to whether meters should be set, removed, repaired and reset or permanently removed. Each case calling for action would originate in an order from the Water Register, the assistant register or someone authorized by the Water Register to issue orders on complaints and advices of violations or neglect. Should these orders originate on complaints or advices coming through the complaint clerk, the preliminary procedure would be as described above in relation to the work of the complaint clerk. Should the order originate from special inspection ordered by the Water Register, after reaching the meter setting and repair division the procedure would follow the same order as if originating with the complaint clerk. Orders would be on a form indicating the action to be taken, viz.: (a) new meters to be set; (b) meters to be removed, repaired and reset (including relocations); (c) meters to be permanently removed.

- 1) *Orders to set new meters* would give reference to the complaint or other filing number of the papers supporting it, and would show:

Section
Block
Lot
Book
Folio
Name of owner or tenant
Location of premises
Description of premises
Size of building

Stories high
Feet front
Feet deep
Occupied as
Probable date of completion
Size of tap
Size of meter to be installed
Where to be placed
Part metered
Name of owner or tenant

To the order would be attached the signature of the authorizing officer.

- 2) *Orders to remove, repair and reset meters* would give reference to the complaint or filing number of the paper supporting them and would show :

Section
Block
Lot
Book
Folio
Name of owner or tenant
Location of premises
Description of premises
Size of building
Stories high
Feet front
Feet deep
Occupied as
Name of owner or tenant
Location and description of meter
Location of meter
Part metered
Where to be placed when reset
Style of meter
Size of meter
Meter number
Meter index at.....190

- 3) *Orders to permanently remove meters* would give reference to the complaint or other filing number of the papers supporting it, and would also show :

Section
Block
Lot
Book
Folio
Name of owner or tenant

Location of premises
 Location and description of meter
 Location of meter
 Part metered
 Style of meter
 Size of meter
 Meter number
 Meter index at.....190
 Date to be removed

- 4) *An order register* would be kept in the division of meter setting and repairs, in which would be recorded each order received from the assistant register and chief clerk's office, whether to set new meter, to remove, repair and reset old meter, or to permanently remove old meter. The register would be columnar ruled, the columns being headed as follows:

Register number
 Date received
 From whom
 Section
 Block
 Lot number
 Book
 Folio
 Name of owner or tenant
 Location of premises
 Purpose of order
 Card for new meter set
 Date
 Initial
 Notice of compilation
 General inspector
 General bookkeeper
 Clerk in charge of consumers' accounts
 Final return to complaint clerk
 Transfer from register number
 Transfer to register number
 Remarks

- 5) *A card record of new meters set* would be kept as a tickler. On this card record would be entered the complete history of actions taken on each order. The cards would be tabbed on the upper margin for indexing, a different tinted card being used for each of the three purposes. The cards for new meters set would have space and headings provided on the front for showing:

Section
Block
Lot
Book
Folio
Card number
Register number
Name of owner or tenant
Location of premises
Date owner notified
By whom
Last date for plumbers' application
Application date
Plumber's name
Address
Date city plumber notified
Requisition for city plumber's supplies
 Number
 Date
 Date approved
 Name
 Address
Permit number
Date issued
 Expiration of permit
 Plumber notified
 Owner notified
 Permit cancelled
Date of expiration of permit notice
Plumber notified
Owner notified
Permit cancelled
Date city plumber notified
Requisition for city plumber's supplies
 Date
 Number
 Date approved
 Name of city plumber
 Address
Date plumber's return
Date meter taken from testing station
Date meter set
Where placed
Part metered
Style
Size
Meter number
Meter index
Date inspection ordered
Order number

Name of inspector
Date inspector's return
Violations noted
Date final inspection

The information would be so arranged that it might be contained on a card $8 \times 5\frac{3}{8}$ inches, the section, block, lot, book, folio and register number being carried on tabs extending from the upper margin. On the reverse side of the card would be the following information:

Section
Block
Lot
Book
Folio
Register number

These references would be on upper marginal taps. On the body of the card would be spaces for:

Name of owner or tenant
Location of premises
Date owner notified
Date plumber notified
Last date for plumber's application
Application date
Plumber's name
Address
Date city plumber notified
Requisition for city plumber's supplies
Number
Date
Date approved
Name
Address
Violation permit number
Date issued
Expiration of permit
Plumber notified
Owner notified
Permit cancelled
Date notice of expiration of permit
Date plumber notified
Date owner notified
Date permit cancelled
Date city plumber notified
Requisition for city plumber's supplies
Number
Date

Approved
Name of city plumber
Address
Date plumber's return
Date meter disconnected
Location of meter
Style
Size
Meter number
Meter index
Date turned over to meter company for repairs
Date returned by meter company to testing station
Date taken from meter testing station
Date reset
Where placed
Part metered
Meter index
Date inspection ordered
Order number
Inspector's name
Date inspector's return
Violations noted
Date final inspection

The use of the cards as a tickler would be as follows:

- (a) As each card is made up and notice prepared and sent to the owner to have his plumber make application to set new meter, the card would be placed in a cabinet file to serve as a tickler, classified by dates of expiration of notice to owners.
- (b) Upon application being made by a licensed plumber to set a new meter in response to notice to owner, permit to set new meter would be issued and entry would be made of the date of application, plumber's name and address, permit number, expiration of permit, date issued, after which the card would be transferred to a cabinet file to be used as a tickler for dates of expiration of permits.
- (c) In case the licensed plumber did not make application to set meter, prior to the date of expiration of the notice, permit would be issued to a city plumber carrying with it an order to set meter, the date of such permit being entered on the card and the card transferred to the cabinet file above described.

- (d) In case returns were not made on the permit, at least fifteen days prior to the date of expiration, a notice would be sent to the plumber calling attention to the date of expiration of the permit and to the rule of the department, that in case return were not made on or before the date of expiration, permit would be cancelled. The date of such notice being entered on the card, the card would be transferred to the file of permits from the current date of notice to the terminal date for the expiration of the permit.
- (e) Upon return by the city plumber showing new meter set, an order would be issued to an inspector to inspect the meter and to make return, the facts on the return of the plumber and the fact of the issue of the order to the plumber to inspect being noted on the card and the card transferred to a file of original inspections, which would be classified by dates of issue of the orders to inspectors.
- (f) Upon return of the inspector on the order to inspect new meters set, the facts contained on such return would be entered on the card, and in case a violation were reported, a notice would be issued to the plumber to remove violation. The card would be transferred to a violation file, being classified therein by terminal dates for making application for permit to remove violations.
- (g) Upon application of the plumber for permit to remove violation and the issuing of the permit, these facts would be entered on the card and the card transferred to a file of terminal dates of permits for the removal of violations. In case, however, the plumber doing the original work did not make application within the period prescribed in the notice to remove, the permit would be issued to a city plumber, and the fact having been entered on the card would be filed in the same manner as described above.
- (h) Upon return of the plumber that the violations had been removed, an order would be issued to an inspector to reinspect the meter; the facts on the return of the plumber and the fact of the issuing of the

order having been entered, the card would be transferred to a file of orders to inspectors as above described, classified by dates of issue of such orders.

- (i) Upon the return of the inspector showing that the violation had been removed, the facts contained therein would be entered on the card and the card would be transferred to an inspection file, awaiting the issuing of notice to the assistant register and chief clerk and to the general bookkeeper that the new meter had been set.
 - (j) Notice of completion of the work having been prepared and entered on the card, the card would then be transferred to a temporary complete file, all cards showing completion within the month being held in the temporary complete file until the monthly report of the division of meter setting and repairs had been prepared for the Water Register, upon which the cards would be transferred from the temporary file to a permanent complete file.
- 6) *A card record of meters removed, repaired and reset* would be kept as a tickler on the progress of work under orders to remove, repair and reset. The form of this card would be as follows:

Register number
Name of owner or tenant
Location of premises
Date owner notified
By whom
Last date for plumber's application
Application date
Plumber's name
Address
Date city plumber notified
Requisition for city plumber's supplies
 Number
 Date
 Date approved
 Name of city plumber
 Address
Permit number
Date issued
Date city plumber notified
Requisition for city plumber's supplies
 Date
 Number

Date approved
 Name of city plumber
 Address
 Date plumber's return
 Date meter disconnected
 Style of meter
 Size of meter
 Meter number
 Meter index
 Date turned over to meter company for repairs
 Date returned by meter company to testing station
 Date taken from testing station
 Date reset
 Where placed
 Part metered
 Meter index
 Date inspection ordered
 Order number
 Name of inspector
 Date inspector's return
 Violations noted
 Date final inspection

Upon marginal tabs at the top of the card would be carried the section, block, lot, book, folio and card number. On the reverse side would be the same information as above described with reference to the cards for new meters set. The procedure with respect to the use of the card as a tickler would be the same as that above described in relation to the card record of new meters set.

- 7) *A card record of meters permanently removed* would be kept as a tickler on the progress of orders to permanently remove meters. The form of this card would be as follows:

Register number
 Name of owner or tenant
 Location of premises
 Date owner notified
 By whom
 Application date
 Plumber's name
 Address
 Permit number
 Date issued
 Expiration date of permit
 Plumber notified
 Owner notified
 Permit cancelled

Date plumber's return
Meter disconnected
Location of meter
Style
Size
Meter number
Meter index
Part metered before removal
Part metered after removal
Building purposes and taps branch notified

The procedure, with respect to the use of this card as a tickler, would be the same as above described with relation to the card record of new meters set.

- 8) *Notice to owners to have licensed plumbers make application* to comply with orders (describing therein the action to be taken) would be issued. The same form of order would be used for all notices to owners, whether to **make** application to have meters set, to make application to have meters removed, repaired and reset, or to **make** application to have meters permanently removed. The purpose for which application is to be made would be written in the form at the time it is to be sent out. The lines for name and address on the notice would be so located that after the name and address had been written, the notice might be folded in such manner that a window envelope could be used.
- 9) *Application by licensed plumber* would be made before permit would be issued. The application would be in the same form as at present used, a place being left thereon for stating the character of the action to be taken. The one form of application would therefore serve on every occasion where application of plumbers would be required.
- 10) *Permits* would be issued to licensed plumbers on application, or in case application was not made by licensed plumbers before date of expiration of notice to owner, the permit would be issued to a city plumber. Permits to city plumber would first be sent to the Commissioner to have indicated thereon the name of the plumber to whom the permit would be addressed. Upon return of the permit from the Commissioner, the date when the plumber would be required to make return on the work would be entered on the permit. The permit would then be given to the permittee. As in case of notices to be sent to

owners, the name and address upon the permit would be so entered that the permit, when folded, might be enclosed in a window envelope. The form of permit would also contain an outline for plumber's return and certificate of work completed. Upon the completion of the work the plumber would be required to make his return on this form, thus surrendering the original permit, the purpose for which the permit would be issued being stamped thereon at the time of issue.

- 11) *Notice to plumbers of date of expiration of permit* would be sent out in case return were not made by plumbers on or within fifteen days of the date of expiration. The form of notice would require that return be made on or before the terminal date on pain of forfeiture of permit. The same form of notice would be used as to dates of expiration of permits, whether for new meters to be set, meters to be removed, repaired and reset, meters to be permanently removed, or for removal of violations.
- 12) *Orders to inspectors* to inspect meters, set or remove meters would be issued upon returns of plumbers on permits. These orders would be on a form showing the following:

- Section
- Lot
- Block
- Volume
- Folio
- Location of premises
- Location of meter
- Style of meter
- Size of meter
- Number of meter
- Index number
- Remarks

The first seven items of the order as prepared by the clerk in charge would be filled out by him, the other items being left to the inspector. On the form of order would also be a form of return to be made by the inspector after his inspection has been completed. The same form of return would be used for original inspection, inspections for removal of violations and final inspections and whether the inspection be on new meters set or meters removed, repaired and reset, meters permanently removed or violations removed.

- 13) *Reports on orders sent to the division of meter setting* to set new meters, to remove, repair and reset meters and to permanently remove meters, would be made on completion of the work. These reports would be written at the time of the return of final inspection, a separate report being made on each order received. The reports would be made in such numbers of copies on a typewriting machine by carbon process, as would be required for the information of the complaint clerk, the bookkeeper, or any other person interested in the fact. All the accounting divisions, however, would receive information through the general bookkeeper in order that the general bookkeeper might retain control over accounting devices.
- 14) *Notices to chief engineer of leaks and waste* would be prepared by the division of meter setting and repairs whenever it appeared from the report of the inspector that leak and waste had been discovered which would require the attention of the chief engineer for its repair.
- 15) *Files of reports from the meter repair shop* would be kept in the division of meter setting and repair. These reports would be received weekly from the meter repair shop and would be used by the clerk in charge of the division of meter setting for purposes of checking up the returns of licensed plumbers and city plumbers as to meters set, meters removed, repaired and reset.
- 16) *Files of papers containing orders received* (to set new meters, to repair, remove and reset meters, to permanently remove meters) and of notices, applications, permits and returns would be kept in the division of meter setting and repair. The original orders as received would be carried in the files classified by section, block and lot number. All notices, permits and orders issued and all returns made would be placed in this file attached to the original order to which such action pertained. When completed, the papers would be taken from this file, and after being entered in the order register would be returned with the report to the complaint clerk in the office of assistant register and chief clerk. This file would also serve the clerk in charge of the division of meter setting and repair as an index, by means of which he might ascertain the status of all orders uncompleted. It would also serve as a reference through which the tickler card might be located, from which information might be obtained which would not be found in the files.

EXHIBIT C—III.

STED PLAN FOR THE REARRANGEMENT OF FLOOR SPACE AND FOR OFF
SUITED TO THE PROPOSED ADMINISTRATIVE RECORDS AND PROCEDURE.

DEPARTMENT OF WATER SUPPLY, GAS & ELECTRICITY BUREAU OF WATER REGISTER MANHATTAN

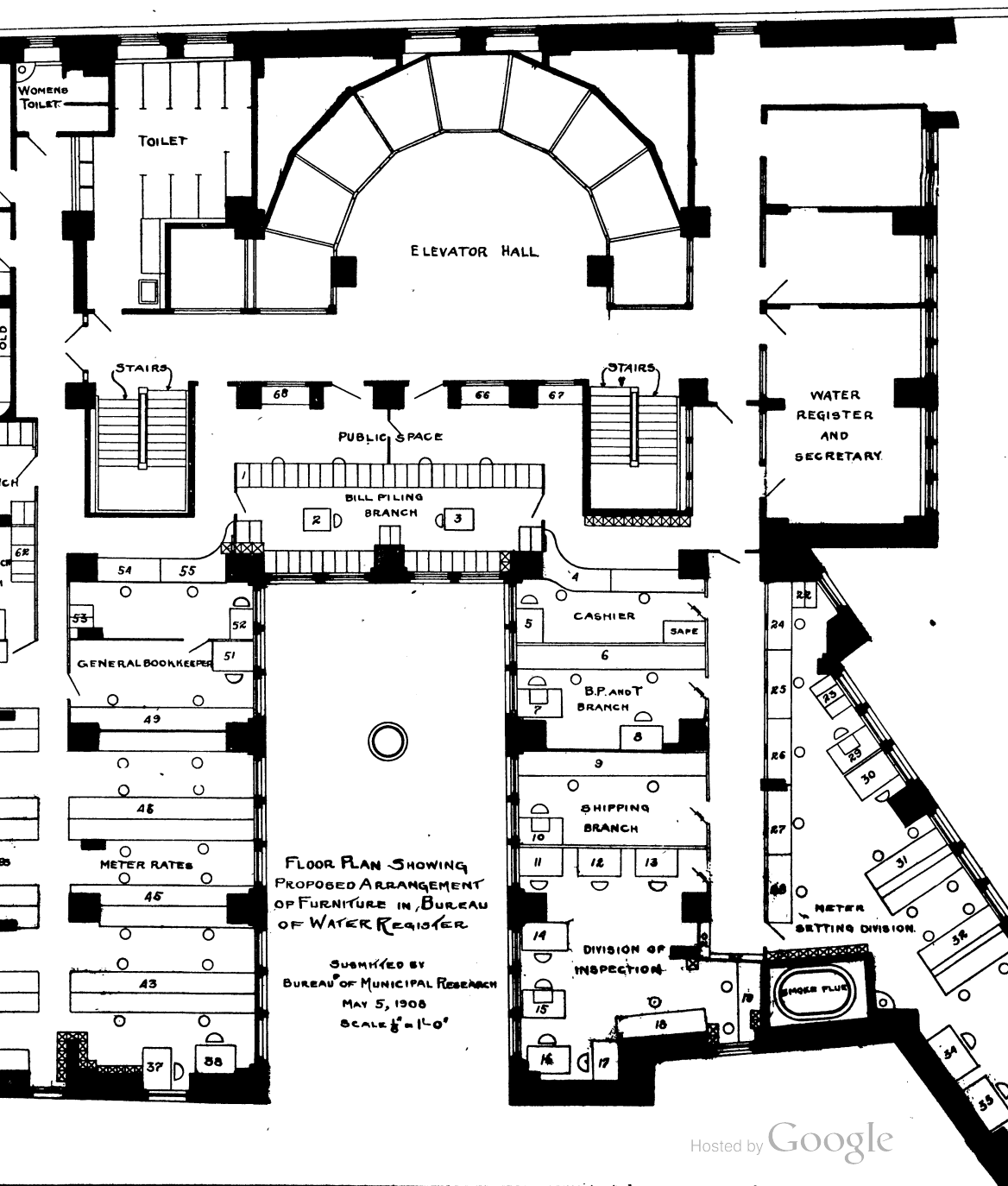
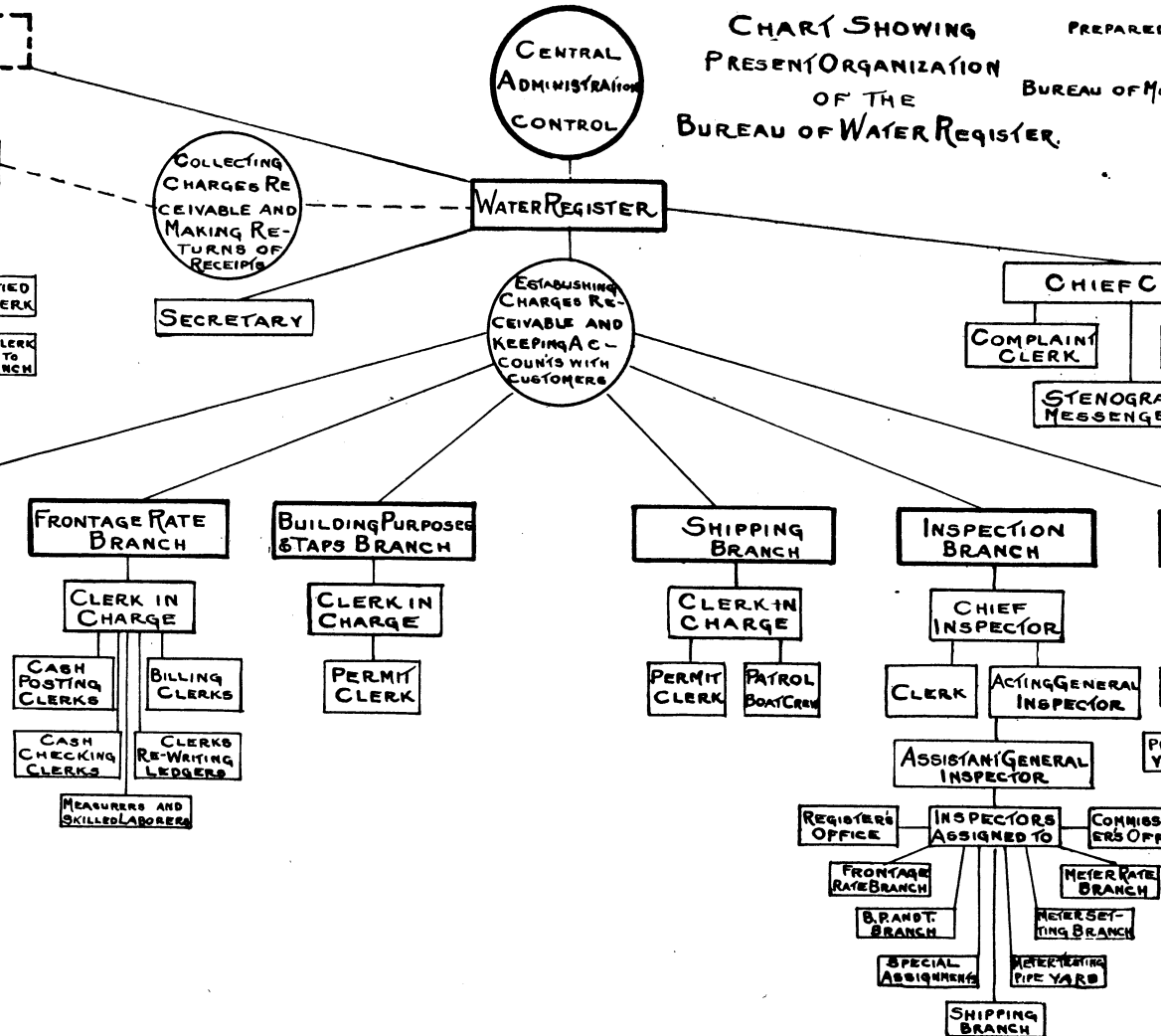
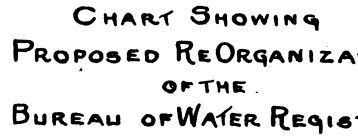


CHART I.



MITTED
AL RESEARCH



INDEX.

	Pages		Pages
Accounting control		Classifications of Record and Guide	
Lack of in cashier's office.....	80	used	58
Proposed division of.....	15, 19	Charge for one building adopted	
Use of bills for.....	23	for another.....	62
Accuracy		Projected buildings and alterations	
Building plans only roughly esti-		fully metered.....	66
mated	39	Projected buildings and alterations	
Conditions for determining meter		treated as exempt.....	67
charges not present.....	44	Projected buildings and alterations	
Difficulty of proving as to records		upon which charges have been	
of payments.....	35	collected	59
Inaccuracy of charges for building		Projected buildings and alterations	
purposes	54	not recorded because "too small".....	71
Administration, problems relating to...	24	Projected buildings and alterations	
Advices from Building Bureau—pro-		reported as finished, etc.....	68
posed	201	Abuses of branch of.....	72
Analysis of records of neglected meters	49	Organization for establishing	
Applications, present		charges and keeping accounts....	75
For extras	94	Personnel of office of.....	85
For tapping Croton water pipes....	95	Reports of financial clerk.....	87
To open street to repair service		Present records and procedure in	
pipe for setting meters.....	126	office of.....	92
To unmeter	131	Inspection and report books.....	93
Blotter of applications to unmeter....	131	Register of extras.....	94
Applications, proposed		Cash records, receipts for use of	
For shipping permits.....	198	water for.....	97
For building purposes and taps		Proposed reports of permits issued....	181
permits	204	Proposed orders for inspections and	
For permits to plug existing taps....	206	returns	201, 206
For permits for taps.....	208	Proposed notices to builders.....	203
By licensed plumbers.....	221	Proposed architect's estimate.....	203
Architect's estimate, proposed.....	203	Proposed permits for.....	204, 205
Asset accounts, proposed.....	20	Proposed applications for permits..	204, 205
Assistant register and chief clerk		Proposed card index.....	207
Need of.....	18	Proposed reports of.....	155, 209
Proposed office of.....	15	Proposed files, card index, etc.....	209
Proposed powers and duties of....	18	Buildings	
Averaging accounts		Report on completion or demolition	
Present method of.....	52	of	103
Proposed advices as a basis for....	194	Report on alterations and com-	
Proposed schedules of charges.....	194	plaints against.....	104
Authorities for rebates, refunds, can-		Card record branch, proposed.....	22
cellations and corrections.....	173-179	Cash	
Balances		Present book kept by financial	
Advantage of taking monthly.....	79	clerk	139
Proposed monthly general ledger		Present classified cash book.....	140
trial balance.....	171	Present general cash entry book....	140
Proposed files of trial balances of		Present records of.....	97
ledgers	180, 181	Present meter rate blotter.....	113
Proposed trial balances of frontage		Present report of receipts in ship-	
rate ledgers.....	191	ping branch.....	121
Proposed trial balances of meter		Present blotter for shipping.....	122
rate ledgers.....	194	Cashier	
Proposed trial balances of metered		Present records and procedure in	
shipping ledgers.....	197	office of.....	139
Bill filing cabinets, proposed.....	184-186	Present reports of.....	141
Billing process		Personnel, present office of.....	85
Present method offers no protection		Proposed reports of.....	151, 168-170, 185
to city.....	32	Chamberlain's	
Present method allows possibility of		Receipt	141
favoritism	35	Receipt vouchers proposed.....	170
Proposed method.....	23, 78	Changes in organization.....	76
Bookkeeping		Charges	
Proposed general branch.....	20	Averaging of.....	52
Proposed reports of bookkeeper....	152	Present method of determining for	
Builders, proposed notices to.....	203	building purposes.....	55, 73
Building purposes and taps		For one building adopted for	
Uncontrolled discretion in estab-		another	62
lishing charges.....	39	Loss to city from undercharges....	63
Building plans only roughly esti-		No explanation for exemptions.....	68
mated	39	Clerk decides upon building to be	
Records lack uniformity.....	39	registered for.....	71
No lien for charges for.....	39	Proposed organization for establish-	
Collections not centralized.....	39	ing	75
Information on which charge is		Conditions determining.....	24
based	55, 57	Establishment of frontage rate....	24
Rates for.....	56, 57		

INDEX—Continued.

	Pages		Pages
Establishment of meter rate.....	24	Present ledgers annually rewritten.....	32
Establishment of shipping.....	27	Present billing method expensive and offers no protection.....	32
Establishment of building purposes.....	27	Present impossibility of proving accuracy of credit postings.....	32
Establishment of frontage rate.....	100	General conclusions resulting from study of branch.....	44
Records and documents pertaining to metered water.....	109, 110	Personnel of present office.....	85
Records and documents pertaining to setting meters.....	109, 114	Present records and procedure of branch.....	100
Checks		Present bills.....	105
Proposed list of checks received by mail.....	160	Return of present bills in arrears.....	106
Proposed list of checks returned to senders.....	161	Proposed methods and procedure for charges.....	77
Chief clerk (see also assistant register and chief clerk)		Proposed detailed report of branch.....	153
Present office of.....	12	Proposed revenue journal.....	172
Personnel in present office of.....	85	Proposed files of trial balances of ledgers for.....	180
Description of present records and procedure in office of.....	89	Proposed bills.....	182
Requisitions for supplies, stationery, printing, etc.....	91	Proposed receivable schedules.....	183
Clearing account, proposed.....	21	Proposed ledgers.....	190
Collections		Proposed trial balances of ledgers.....	191
Not centralized.....	39	Proposed notices of penalties.....	192
Of money under proposed plan.....	82	Proposed requests for inspection, measurements, advices, etc.....	192-193
Records kept by financial clerk.....	97	Hearings, on complaints.....	13, 88
Proposed classified register.....	168	Hydrants	
Proposed cashier's report of.....	170	Permits for use of.....	95, 205
Comparison of new and old plan.....	75	Register of damaged and leaking.....	121
Complaints		Order to chief engineer to repair.....	121
Present registration and distribution of.....	89	Proposed notice to chief engineer of damaged and leaking.....	200
Proposed duties of clerk.....	18	Inspection, present	
Proposed reports concerning.....	150, 165	Old method of reporting meter readings.....	34
Proposed slip prepared.....	162	New method of reading meters not well administered.....	34
Proposed register of.....	165	No systematic check on inspectors' reports.....	66
Consumers		Assignments for.....	77
Notices of amounts, due and unpaid.....	112-113	Personnel of present office.....	85
Ledgers in present use.....	102	Reports on frontage rate.....	104
Proposed consumers' ledgers journal.....	179	Documents pertaining to special inspections and reports.....	109
Control of ledgers.....	21	Notices to inspectors of shipping permits issued.....	118
Ledgers for establishing charges and keeping accounts.....	75	Entries in inspectors' index or field book.....	111
Proposed method of posting ledgers.....	78	Notices to inspectors of boats laid up.....	119
Control		Index to daily reports.....	120
Present organization for central.....	12-13	Reports to general inspector.....	120
Proposed organization for central.....	15	Orders to examine premises and report on examination.....	124
Proposed division of inspection.....	16	Return on service of notice to in stall.....	125
Proposed division of accounting.....	15, 19	Final reports on premises partly and fully metered.....	128
Of consumers' ledgers.....	21	Report on violations in setting meters.....	129
Correspondence, as handled at present.....	86, 89	Notice of inability to inspect premises.....	130
Cross index of properties, proposed.....	186	Report on meters reset.....	132
Defects, present		Order for general examination.....	136-137
In organization and procedure.....	13	Records and procedure in office of general inspector.....	138
Effort by Water Register to correct.....	14	Inspection, proposed	
In organization of accounting branches.....	30	Organization for establishing charges and keeping accounts.....	75
In system of arrears.....	33	Division of.....	16
Deposit		Reports of chief inspector.....	157, 211
Slips, present.....	140	Orders for inspection and return of inspectors.....	165, 201, 206, 210
Slips, proposed.....	170	Reports of inspectors to chief inspector.....	165, 210
Errors		Requests for inspection and advices—frontage rates.....	192-193
In records as to business use.....	41	Daily report of.....	195
In records as to fixtures and extra families.....	43		
Loss of revenue from.....	80		
Frontage Rate			
Present accounts separate from meter rate accounts.....	30		
Present accounts established on unofficial information.....	31		
Present method of making charges allows collusion and loss of revenue.....	31		

INDEX—Continued.

	Pages		Pages
Reports of shipping branch.....	197	Vouchers for.....	115, 136
Reports of building purposes and taps branch.....	207	Blotters and ledgers.....	115
Register of.....	210	Present records and procedure.....	123, 131
Investigation, summarized result of.....	74	Orders to inspectors to examine premises.....	124
Journals, proposed		Register of notices to install meters.....	124
Revenue—frontage rate.....	21, 172	Notices to owners to install meters.....	125
Revenue—meter rate and miscellaneous.....	21, 173	Inspectors' return on service of notice.....	125
Consumers' ledgers.....	179	Applications for, and permits issued.....	126
Consumers' ledgers, control of.....	21	Blotter of permits to install meters.....	126
Consumers' ledgers, establishment of charges, etc.....	75	Weekly report of meters taken from pipe yard.....	127
General journal and vouchers for.....	171	Notice to plumbers to set.....	127
Rebate, refund, cancellation and correction.....	173	Notice to owners to set.....	127
Ledgers		Record of final examination of meters set.....	129
Frontage rate.....	102	Violations in setting.....	130
Meter rate.....	110	Applications for and permits for disconnection.....	131
Proposed, controlling accounts to general ledger.....	20	Notice sent to owner if property is not properly metered.....	132
Liability accounts, proposed.....	20	Blotter and memorandum of premises not properly metered.....	133
Mail		File of notices from meter rate branch.....	134
Present handling of.....	86, 89	Order to city plumber to install or reset meter.....	134
Proposed duties of clerk.....	19	Notice to owner of city plumber's charges for.....	135
Methods		Refused entry by city plumber.....	136
Examination of.....	41	Records of permits for resetting meters.....	137
Administrative results of defective.....	41	Proposed reports.....	156, 223
Do not protect city against loss.....	47	Meters	
And procedure, proposed.....	77	Out of repair, and neglect of.....	36
Meter rate		Violations for setting and repairs not properly removed.....	37
Accounts separate from frontage rate accounts.....	30	In use do not accurately determine amount of water used.....	44
Wide range of discretion as to properties to be metered.....	33	May easily be tampered with.....	45
No method of proving accuracy of accounts.....	34	Impairments not readily discovered.....	45
Old method of reporting readings.....	34	Wearing of valves of.....	46
Billing allows possibility of favoritism.....	35	Not properly set.....	46
Present methods and procedure.....	108	Loss of revenue on account of impairment of.....	46
Present ledger.....	110	Facts pertaining to city's.....	47
Present bills and stubs.....	111-112	Examples of conditions of.....	48
Present memorandum notice of bills unpaid.....	112	Neglected.....	49
Present returns of bills in arrears.....	113	Reported defective conditions of.....	49, 50
Present memorandum to Receiver of Taxes of bills in arrears.....	113	Reported reasons for inaccessibility of.....	50
Present cash blotter.....	113	Average period of neglect of.....	50
Personnel of present office.....	85	Recorded conditions of neglected meters.....	51
Proposed methods and procedure.....	78	Ledgers containing neglected accounts.....	51
Proposed billing.....	78	Averaging of charges.....	52
Proposed revenue journal.....	173	Handling of defects and violations.....	79
Proposed files of trial balances of ledgers for.....	180	Report of meters set.....	110
Proposed bills.....	183	Notice to consumers to repair.....	114
Proposed bills, metered shipping.....	183	Bills for.....	114
Proposed receivable schedules.....	183	Vouchers for setting.....	115
Proposed ledgers.....	193	Weekly reports and records of meters taken from pipe yards.....	127
Proposed trial balances of ledgers.....	194	Notice to owners to set.....	127
Proposed notices of amounts due and unpaid.....	194	Records and procedure pertaining to removal of.....	130
Proposed inspectors' daily reports.....	195	Weekly report of repaired meters taken from pipe yard.....	132
Proposed schedules of readings.....	195	Notice of violations—old meters.....	133
Meter setting and repairs		Notice to owners to properly meter premises.....	133
Work duplicated and control lacking.....	36	Notice to owners to explain why charge should not be made for unmetered water.....	134
Bills unaudited and uncollected.....	37		
Violations not promptly removed.....	37		
Wearing of valves.....	46		
Meters not properly set.....	46		
Organization for establishing charges and keeping accounts.....	75		
Personnel of office of.....	85		
Notice to consumers to repair.....	114		
Notice of owners' refusal to repair.....	114		
Bills for.....	114		

